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Part III

Environmental Protection Agency

Draft State Hazardous Waste Capacity Assurance Guidance; Notice

EVIRONMENTAL PROTECTION AGENCY

[FRL-3435-5]

Draft State Hazardous Waste Capacity Assurance Guidance

AGENCY: Environmental Protection Agency.

ACTION: Notice of Draft Guidance for Review and Comment.

SUMMARY: The Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response (OSWER) is making available for review and comment draft guidance to States for meeting the capacity assurance requirements under section 104(c)(9) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. 9604(c)(9). Comment is especially sought on alternative approaches to achieving interstate agreements for future hazardous waste management. The final document will provide guidance to State officials on how to prepare a State Capacity Assurance Plan (CAP) to comply with the requirements of the statute.

The provision of such guidance to the States is necessary so that each State will be fully aware of the criteria and content the Agency will use to determine what constitutes in "adequate assurance" of hazardous waste treatment/disposal capacity for wastes reasonably expected to be generated within their State for the next 20 years.

Should a State fail to provide such an assurance, monies for Superfund remedial action will be withheld from that State after the statutory deadline for the assurance, i.e., October 17, 1989.

DATE: Comments must be submitted (postmarked) no later than September 30, 1988.

ADDRESSES: Comments on the document may be addressed to Patricia Mercer, Mail Code OS-110, Office of Solid Waste and Emergency Response, Cross-Media Analysis Staff, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: Malcolm Bliss (Project Manager) at (202) 475-9829.

SUPPLEMENTARY INFORMATION: Recognizing that many States have extensive experience in defining hazardous waste treatment and disposal capacity needs and plans, EPA determined it should utilize this State expertise to help develop hazardous waste treatment and disposal capacity assurance guidance. To further this objective, EPA entered into a cooperative agreement with the National Governor's Association (NGA) to develop a forum to discuss capacity related issues and make recommendations to EPA on the nature of capacity assurance guidance. NGA was to examine alternatives in four broad areas: (1) Data and projections; (2) the role of waste minimization; (3) interstate agreements; and (4) plans for developing new capacity. In light of the substantial interest and debate which occurred on the interstat issues, (e.g., interstate agreements and resolution of differences among States) it was determined that alternative approaches to these issues should be examined. The documents published today for public comment are the result of work products received under the NGA Cooperative Agreement and the alternative discussed above (See Chapters 1 and 2 and note the deletion of Appendix A).

Summary of Capacity Assurance Plan Contents

The following is a summary of the key elements identified as critical in the development of capacity assurance plans (CAPs):

Data and Projections

Estabishes procedures for States to use to determine the amount of hazardous waste generated within their borders, the amount of treatment and disposal capacity available within their state; the amount of waste imported and exported from and to other States; and the amount of generation and capacity projected to be available over a twenty year period. Extensive use is made of EPA's biennial report data, TSDRF survey data, and technical support prepared by EPA's Office of Solid Waste.

Uses of Waste Minimization

Explains how States may use waste minimization as part of their strategy for making capacity assurances, and establishes procedures for reporting to EPA on elements of waste minimization programs, estimating the effects of such programs on long-term capacity needs, communicating with industry, and measuring the effects of waste minimization programs.

Plans for Developing New Capacity

Explains how States whose data and projections indicate the need for additional in-state capacity can demonstrate to EPA that they have an adequate plan for developing new capacity; also establishes reporting procedures for State facility siting programs and milestones for capacity development.

Interstate Agreements

Explains how States which must rely on the availability of treatment and disposal capacity in another State can make a CERCLA section 104(c)(9) capacity assurance. In accordance with the Statute, a valid interstate agreement is necessary for an exporter State to assure availability of out-of-State capacity.

Summary of Interstate Alternative Approaches

The following summary identifies key differences in the interstate alternatives articulated in the documents that follow:

Nature of the Interstate Agreement

NGA Recommendation

All States should be required to provide a generic interstate agreement (1) recognizing current levels of imports/exports; (2) agreeing to participate in the planning and resolution procedure outlined in the guidance; and (3) agreeing to carry out the siting activities contained in their capacity assurance plan.

Alternative

All exporting and importing States should provide generic interstate agreements. This agreement acknowledges the waste management practices contained in their capacity assurance documentation including all import and export waste flows. In the event that some importing States cannot sign the generic agreement, affected exporting States should seek separate bilateral agreements with another State with excess treatment and/or disposal capacity.

Who Shall Sign an Interstate Agreement?

NGA Recommendation

EPA should require each State to sign a generic interstate agreement as a necessary condition for obtaining EPA's approval of its CAP. States failing to provide the generic interstate agreement should be subject to CERCLA 104(c)(9) sanctions. Failure of an importing State to provide a generic agreement would not necessarily impose a obligation on exporting States to secure a specific interstate agreement.

Alternative

Exporting States must have an interstate agreement from the importing State that acknowledges available treatment and/or disposal capacity in

that State. Failure of an exporting State to obtain such an interstate agreement would make its CERCLA 104(c)(9) assurance statutorily insufficient. Exporting States could obtain an interstate agreement with any other importing State that demonstrates it has surplus capacity.

Nature of Conflict Resolution Procedures

NGA Recommendation

EPA should develop a formal process to deal with interstate disputes over a period of four years beginning with the submittal of the CAPs. Steps in the process should include:

(1) National analysis and publication of data on interstate waste flows;

(2) Convening of a forum to raise and discuss interstate issues which may lead to regional or multi-state planning efforts;

(3) Refinement of "reasonableness" criteria for export practices;

(4) Resolution of interstate conflicts;

(5) Application of CERCLA 104(c)(9) sanctions against States not meeting "reasonableness" criteria;

(6) EPA's concurrence under RCRA consistency for importing States to restrict quantity of waste transported from an exporting State found to be unreasonable.

Alternative

This version of the guidance acknowledges EPAs responsibility only to ensure that States provide adequate assurances of capacity. All conflicts should be negotiated and resolved at the State level prior to submittal of the CAPs. EPA will not undertake to determine the reasonableness of levels of interstate waste flows.

Final Authority to Determine Unreasonable Exports

NGA Recommendations

If interstate issues cannot be resolved informally or through regional or multi-state planning efforts, importing States would have the ability to petition EPA for a formal hearing on whether or not a particular exporting State violates "reasonableness" criteria. EPA is expected to define objective criteria for application to individual State conflicts. EPA would develop a formal record and issue a determination supporting or denying the aggrieved State's petition. The EPA finding would be the basis for applying CERCLA 104(c)(9) sanctions.

Alternative

The final authority for determining unreasonable export practices should rest with importing States. Importing States may exercise this simply by withholding, or revoking, their interstate agreement with an exporting State. Exporting States not able to execute an agreement for available treatment and/or disposal capacity in another importing State would then be subject to CERCLA 104(c)(9) sanctions.

Date: August 22, 1988.

J. Winston Porter,

Assistant Administrator, Office of Solid Waste and Emergency Response.

NGA Recommendations on Draft State Hazardous Waste Capacity Assurance Guidance

Chapter I—Introduction and Overview of the Capacity Assurance Process

This document provides guidance to state officials on how to prepare a state Capacity Assurance Plan (CAP). Each state must complete a CAP by October 17, 1989 to comply with the requirements of section 104(c)(9) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. This section requires each state to assure the Administrator that adequate capacity will exist to manage the hazardous waste created in the state over the next twenty years (see below). A state's failure to submit an approved CAP by the October 1989 deadline will prohibit the state from receiving Superfund money for remedial actions until such time as assurance is approved by EPA. The availability of funds for emergency removal action is not affected by this requirement.

"*SITING.*—Effective 3 years after enactment of the Superfund Amendments and Reauthorization Act of 1986, the President shall not provide any remedial actions pursuant to this section unless the State in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances deemed adequate by the President that the State will assure the availability of hazardous waste treatment or disposal facilities which—

(A) Have adequate capacity for the destruction, treatment, or secure disposition of all hazardous wastes that are reasonably expected to be generated within the State during the 20-year period following the date of such contract or cooperative agreement and to be disposed of, treated, or destroyed,

(B) Are within the State or outside the State in accordance with an interstate agreement or regional agreement or authority,

(C) Are acceptable to the President, and

(D) Are in compliance with the requirements of Subtitle C of the Solid Waste Disposal Act."

—Section 104(k) of the Superfund Amendments and Reauthorization Act of 1986 amending section 104(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly known as the "Superfund").

Legislative Background on SARA Section 104(k)

The Congress added these requirements to CERCLA through the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of this provision was straightforward: Superfund money should not be spent in states that are taking insufficient steps to avoid the creation of future Superfund sites. The Congress recognized that a safe and rational hazardous waste management program for the nation depended in part on the creation of new facilities employing the most advanced technologies. While many states enacted or planned to enact siting legislation, Congress concluded that few, if any, were developing policies and siting programs that would assure continued facility capacity in the long term.

Congress stressed that a successful state siting program should recognize three key principles. First, the program should require a complete technical analysis of all proposed sites prior to their selection. Second, site selection must be accompanied by full public participation. Third, the process of site selection should find a way to transcend blanket local vetoes. The Congress further stressed, however, that merely having such programs in place would not satisfy the requirements of this section. Each state must provide assurances that their legislative program can work and will be used. The siting process may differ between states, but each program should make the best of existing facilities in the short term and assure continued facility capacity in the long term.

Finally, Congress did not envision that every state would need to develop redundant or unneeded capacity. A site in every state is not required. In some cases, multi-state efforts may be appropriate, requiring some assurance that access exists to out-of-state facilities. Such access is to be assured through "an interstate agreement or regional agreement or authority."

In passing this statute, Congress did not explicitly address what should constitute a state assurance to EPA.

Much was left to interpretation. Moreover, the nature of the data available, the interstate market, and methods to predict future waste generation demand a flexible approach in interpreting and implementing this requirement.

In EPA's view, the CAP should serve a threefold purpose. First, it should effectively demonstrate to the Agency that each state is taking measures to ensure that the hazardous waste created within its borders are and will be effectively managed. Second, it should establish a process under which interstate issues related to hazardous waste management are properly resolved and multi-state planning efforts are encouraged. Third, the CAP should serve as a document to educate and inform the public on the state's strategy for managing the hazardous waste generated by its industry and other sources.

EPA's Responsibility To Implement the SARA Section 104(k) Requirements

The Agency is responsible for developing a procedure for implementing the requirements of CERCLA Section 104(c)(9). The Administrator plans to carry out this process through three major efforts: (1) Publish guidance explaining how to prepare a state Waste Capacity Assurance Plan (CAP) for submission to EPA; (2) provide technical assistance and limited financial resources to the states; and (3) review and approve the state submissions.

Because of the many complex issues involved, EPA sought the advice of state officials, industry, private citizens, and public interest groups as part of developing this guidance package. The recommendations contained in this document reflect the views of these affected parties and specifically address the following problem areas:

- Data used throughout the states varies in uniformity. To help states convert their data to a uniform and consistent format for reporting purposes, EPA will provide technical assistance for states that use the New Biennial Report System, the Old Biennial Report System, or equivalent data from state reports or manifest data.
- Waste projections techniques are uncertain and under development. To accommodate the different approaches available to project waste generation, the guidance permits states to develop their own procedures as long as they meet general criteria.
- Waste minimization is a valuable waste management tool but its results are difficult to predict. To encourage states to develop waste minimization programs, the assurance process grants maximum flexibility to states in calculating the effects of such programs on the demand for future management capacity.
- The current waste management market is multi-state, and privately-run for the most part. To allow states to effectively assure the availability of capacity in other states without executing complicated interstate agreements the guidance requires states to enter into a process to resolve interstate waste management issues and assure the availability of management capacity over the long term.

The Role of the States in Implementing the Capacity Assurance Requirements

Approximately 90 percent of the hazardous waste generated by industry today is handled in facilities owned by the generator and dedicated to that firm's waste; the remainder of the waste is handled in commercial facilities located throughout the U.S. The EPA recognizes that while states regulate, they do not control the development or operation of hazardous waste management facilities both privately and commercially operated. The requirement that states "assure" the availability of management capacity to future hazardous waste generators ostensibly requires states to control what is beyond their current purview.

The Agency believes the intent of the law was far more pragmatic. In a practical sense, states may not control the current hazardous waste market system, but state policies can influence it. To fulfill the intent of the law, a state must use the CAP as an opportunity to review its policies regarding the development and maintenance of sound hazardous waste management facilities. A state must look to the needs of its industry and determine whether current state policies allow or facilitate the development of environmentally safe treatment and disposal options for that industry. It must determine whether a lack of adequate capacity in the state is a result of restrictive policies that encourage industry to send their waste elsewhere. Finally, if substantial capacity shortfalls are projected in the CAP, the state must employ one or more of the options outlined in this guidance: create new capacity in the state through changes in state policy, institute programs to reduce the amount of waste generated in the state, or enter into multi-state planning efforts to site management capacity.

Evaluation Criteria to be Used by EPA

To comply with section 104(c)(9), each state must complete the reporting requirements outlined in this guidance document. The CAP submitted by the state will not be approved unless it meets the following criteria:

1. The state must submit complete and accurate information showing current generation, waste management capacity, imports, and exports.

2. The state must show that its projection of waste generation and demand capacity meet the following guidelines:

(a) The underlying economic assumptions used in the projections should reflect existing or official projections of state economic activity unless otherwise justified by the state;

(b) The projections must account for major waste producing industries and the range of possible changes in the economic behavior of these industries;

(c) The projections must account for one-time only wastes (e.g., CERCLA or RCRA remedial corrective actions);

(d) The projections must correctly incorporate effects of waste minimization as outlined in the state's plan; and

(e) The projections must document assumptions regarding waste imports and exports.

3. For states that rely on waste minimization to reduce the demand for capacity, the state must demonstrate that:

(a) The estimated reductions in wastes are based on a sound technical evaluation of the potential effects of waste minimization in the state. (Available information, such as existing surveys of specific industries and engineering analysis of potential reductions, may be used in this evaluation);

(b) The resources committed to implementing the waste minimization strategy are consistent with the plan set forth by the state; and,

(c) The milestones for projected accomplishments in waste minimization are reasonable and there is a plan to implement these activities.

4. States must execute the agreement set forth in Chapter II and described in Appendix A if they plan to use management capacity in other states at any time over the 20-year "assurance" timeframe.

5. For states showing capacity shortfalls in its projections, the state must meet the following requirements:

(a) It must document the type and quantity of capacity needed and the state procedures that would result in the development of such capacity, including participation in interstate or regional planning efforts;

(b) If additional capacity is to be created inside the state, the CAP must show that state and local laws, regulations, practices, and policies will not hinder the development of additional capacity, when needed, and are consistent with the proposed plan submitted in the CAP. Laws, regulations, policies, and practices that may be found to hinder development of additional capacity include, but are not limited to the following:

(i) Local preemption powers not based on environment, health, or safety concerns with no ability for the state to appeal or rectify local decisions;

(ii) Absence of a siting procedure with clearly defined steps, including opportunity for public review and comment, and clear time periods between permit review, comment, and approval/denial;

(iii) The enactment of rules that may be viewed as discriminatory, such as limits on facility size, types of waste allowed based on origin of waste, and prohibition of waste facilities not based on environmental, health, or safety considerations; and

(iv) A demonstrated history of failed efforts to create additional capacity in the presence of sufficient demand for that capacity.

(c) For states that plan to rely upon capacity outside the state to address the projected shortfall, the CAP must show that such reliance does not conflict with the "reasonableness" criteria set forth in Appendix A.

EPA expects the states to prepare and submit an assurance to the Administrator no later than October 17, 1989. EPA also plans to request revised assurances on a periodic basis, most likely in concert with the biennial report from TSD facilities. At this time, EPA plans to request the first revision by October 1991. Each time a state enters into a cooperative agreement with EPA to obligate Superfund monies, the state must certify that their current assurance represents current policy to the best of their understanding. EPA will establish a standard certification paragraph on compliance with SARA section 104(k), which will appear on all SARA cooperative agreements for remedial action funding.

Chapter II—Basic Instructions For Completing The State Capacity Assurance Plan

This chapter provides states with the basic instructions needed to complete their Capacity Assurance Plan (CAP) in accordance with this guidance document. Each chapter in the guidance provides specific instructions for reporting information to EPA. This chapter outlines the format of the CAP, the technical assistance provided by EPA to complete portions of the CAP, and instructions for transmitting the state's final CAP to EPA.

Capacity Assurance Plan Format

The state should submit its CAP to EPA as a single document consisting of five Parts, based on the information required in the guidance document:

- Part 1 should contain the results of Chapter III of the Guidance Document, which requests information on current generation, management capacity, imports and exports. This chapter asks each state to demonstrate an understanding of its current hazardous waste generation, treatment, and disposal system, and provides a format for all states to manipulate their data internally and report key information to EPA.
- Part 2 should incorporate the results of Chapter IV of the Guidance Document concerning state waste minimization plans. This Part will provide information on each state's use of waste minimization in the capacity assurance process. States that plan to use waste minimization to help them assure the availability of adequate management capacity must supply more detailed documentation on their ongoing and planned efforts.
- Part 3 should incorporate the results of Chapter V of the Guidance Document, which requires states to project hazardous waste generation and the demand for management capacity. This chapter also requires states to estimate the amount of capacity needed in the state over the next 20 years.
- Part 4 should incorporate the results of Chapter VI of the Guidance Document, which covers state laws and procedures for creating management capacity within the state. All states showing a shortfall in management capacity in Part 3 must describe their plans for addressing this shortfall in this Part.

Technical Assistance Available From EPA

EPA recognizes an adequate CAP includes a thorough understanding of current generation, management capacity, waste imports, and waste exports. This is the critical information required in Chapter III (Part 1 of the CAP) and used in all subsequent calculations concerning future waste management practices. EPA realizes that developing this information may be difficult for some states because of differences in data collection and management systems. To help states complete Chapter III of the Guidance Document, and to ensure that all states assemble data into the same format for the CAP, EPA has provided three forms of technical assistance. This assistance is located in a *Technical Reference Manual*, which will be issued by EPA in October, 1988.

The *Technical Reference Manual* will cover the following major topics:

1. Optional conversion methodologies will be detailed to allow the 700 RCRA waste codes to be aggregated into 17 common reporting categories used in the CAP. These conversion methodologies will allow states using the new Biennial Report, the Old Biennial Report (including comparable data obtained from state reports and manifests), and the California UCD codes to convert their waste data into 17 common categories.

2. An optional default methodology will be described to allow states to assign the 17 waste categories to the 15 waste management categories used in the CAP. This default methodology will be based on current waste management practices; states will be free to choose different alternatives and must adjust the default methodology for when used to project future practices.

3. A procedure will be described for converting EPA-supplied data on waste management capacity in your state (by facility ID number) to the 15 waste management categories of the CAP. The facility-by-facility information will be supplied under separate cover and will include information on facility status (on-site, commercial, or captive) and capacity (currently used, currently available, and future plans). States will be required to review, correct, and assemble this information for reporting their capacity needs.

Finally, EPA will be developing computer-based programs to facilitate the calculations described in the *Technical Reference Manual*. The programs will be designed to utilize a common software system and will be made available in the fall of 1988.

Additional technical assistance can be obtained by using the EPA Hotline, which is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Executing The Interstate Agreement

Those states that will use out-of-state capacity to meet their waste

management needs at any time over the 20-year assurance timeframe must execute the Interstate Agreement attached to this chapter. The background, intent, and terms of the agreement are explained in Appendix A. Failure to execute this agreement (as appropriate) will result in disapproval of the CAP.

Transmitting The CAP To EPA

A state's capacity assurance plan should be transmitted to EPA on or before October 17, 1989. Please send XX copies of the CAP to the following address: United States Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, Attn: XXXXXXX.

INTERSTATE AGREEMENT

Pursuant to the requirements of Section 104(k)(9) of the Superfund Amendments and Reauthorization Act of 1986, and the Waste Capacity Assurance Guidelines issued by the U.S. Environmental Protection Agency pursuant thereto; and

In recognition of the fact that this state is both an importer and exporter of hazardous waste; and

In accordance with similar agreements on behalf of other state governments respecting interstate transport and disposal of hazardous waste:

The state of ———— hereby agrees to the following:

1. The government of this state is aware of the status quo of interstate waste shipments;

2. In accordance with other state agreements, the government of this state agrees to participate in the planning, analysis, and resolution process to address interstate transport and disposal of hazardous waste as outlined in Appendix A of the Waste Capacity Assurance Guidelines issued by the U.S. Environmental Protection Agency; and

3. The government of this state intends to carry out the activities described in the state's Capacity Assurance Plan, which will include programs and/or milestones relevant to waste minimization and the management of hazardous waste.

Nothing in this Agreement shall be construed to affect the existing obligations of the states in a manner that would subject this Agreement to the purview of Clause 3, Section 10, Article I of the United States Constitution.

Governor or Designee

Chapter III—Reporting the Current Status of Generation, Management Capacity, Imports, and Exports

Purpose

This chapter asks each state to demonstrate an understanding of its current hazardous waste generation, treatment, and disposal system. It requires a strong technical knowledge of your state's hazardous waste management and tracking information systems, including data needed to meet federal reporting requirements. The key items to be reported are as follows:

- The type and quantity of federally regulated (under RCRA) hazardous waste generated within the state from both continuous industrial processes as well as one-time events, such as "batch" cleanups and RCRA and CERCLA corrective actions.
- The type and quantity of federally regulated hazardous waste shipped out-of-state.
- The type and quantity of federally regulated hazardous waste received from other states.
- The type and quantity of in-state capacity to manage RCRA-regulated hazardous waste and other waste not regulated by the EPA that consumes the state's hazardous waste management capacity, including state-regulated waste and non-hazardous waste.

Much of the information developed in this chapter will serve as a baseline for projecting future waste generation and disposal patterns. For example, information developed on the unused capacity available at instate facilities will be useful when assessing future capacity needs. Similarly, current patterns of waste imports and exports can be used to project future behavior.

General Instructions

This chapter provides guidance to states on their responsibilities for reporting information on current waste generation, handling, and disposition. Personnel completing this chapter should consult the separate *Technical Reference Manual* for more detailed instructions on sources of data, data manipulation, and translation of raw data into the reporting formats provided in this chapter.

The following worksheets must be completed to fulfill the minimum requirements of Part I of the CAP:

- Worksheet III–1 summarizing in-state generation of 17 types of RCRA-hazardous waste.
- Worksheet III–2 summarizing in-state waste management capacity.
- Worksheets III–3, III–4, III–5, and III–6 reporting the demands imposed by each of the 17 types of hazardous waste on each of the 15 waste management categories (as applicable) in total and for on-site, off-site captive, and commercial facilities.
- Worksheet III–7 providing detail on waste exports.
- Worksheet III–8 providing detail on waste imports.

States may develop their own report forms (computer-driven reports are satisfactory) but they must follow the general formats of the worksheets listed above. Other worksheets and interim results may be included in the CAP at the discretion of the state unless otherwise noted.

Only RCRA-regulated wastes are to be reported in the Worksheets. If a state compiles figures for state-regulated waste, they should not be reported in the Worksheets submitted as part of the state CAP. Similarly, although a state may wish to track such quantities separately, the waste generated by small quantity generators (less than 1000 kilograms of waste per month) should not be entered into the Worksheets to be submitted in a state's CAP.

The individual or individuals responsible for completing this chapter should be thoroughly familiar with both state and federal hazardous waste reporting systems. In almost all states, these individuals will be part of the state's RCRA program office. However, staff from the state's Superfund office or the equivalent EPA regional Superfund Office must be consulted to obtain information concerning site cleanups.

Technical assistance is available from EPA in several forms. A hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA regional office serving your state has assigned several individuals to answer questions; names and addresses are provided in the *Technical Reference Manual.* EPA has provided direct technical assistance through regional efforts to coordinate compliance with SARA section 104(k). If states are unaware of these on-going initiatives, they should contact the RCRA coordinators in their regional offices for additional information.

Technical Reference Manual

The *Technical Reference Manual* that accompanies this guidance is designed to help extract and manipulate raw data from Biennial Reports and similar state sources and produce reports for

inclusion in a state's CAP. It provides four sets of instructions, one of which will be applicable to your state, based on whether your state computerizes the Biennial Report or the equivalent data and whether your state uses the old or new Biennial report forms (or equivalent data).

Evaluation Criteria

The Agency plans to judge this document primarily on the accuracy of the data and supporting material used to complete the worksheets. In most cases—unless otherwise noted by the state—EPA expects the waste generation data contained in the worksheets to correspond with information obtained by EPA through its major reporting system, the Biennial Report. The Agency recognizes that differences will exist, however, between the state and federal reporting systems. States showing wide disparity between the amount of waste reported for the CAP and that reported to meet other federal requirements may be asked for more details.

EPA plans to provide individualized state reports with detail on hazardous waste management capacity in that state as reported in the agency's recent *Treatment, Storage, Disposal, and Recycling Survey* (TSDR). This will allow states to report consistent and relatively accurate baseline information on waste management capacity. Recognizing that some information from the TSDR survey may be up to three years obsolete at the time of the first CAP, states are encouraged to check these data and augment or correct them before presenting them in the CAP. Any corrections should be documented with a simple narrative discussion of changes.

Reporting Waste Generation

Most states now report the generation of hazardous waste by EPA waste code. More than 700 waste streams comprise EPA's list of regulated industrial residuals. Two states—California and Washington—report waste flows using a more aggregated set of waste codes developed at the University of California, Davis (these comprise the so-called UCD codes). For purposes of capacity assurance, all waste streams are to be grouped into 17 SARA waste types, which provide sufficient information for assignment to management methods.

Tables XX, XX, and XX of the *Technical Reference Manual* provide conversion factors to aggregate the EPA and UCD waste codes into this new waste type system. These tables match waste streams in either the EPA or UCD categories to the capacity assurance waste streams on the basis of waste phase (liquid, sludge, or solid) and major constituent (organic components, metals, halogenated compounds). Several miscellaneous categories convert directly.

States using the new 1987 Biennial Report forms should use appropriate tables and procedures described in the *Technical Reference Manual* to transfer EPA waste codes into their 17-waste type equivalent. This method uses the data on waste stream characteristics in conjunction with the designated EPA waste code to create a relatively precise mapping procedure.

States using the old Biennial Report forms should use a different set of tables and procedures presented in the *Technical Reference Manual* to convert EPA waste codes into the 17 SARA waste types. These conversions are generally considered less precise because less is known about waste stream characteristics. Where necessary, the procedures use a national profile of waste characteristics to facilitate the conversion.

Table XX of the *Technical Reference Manual* maps UCD waste codes into the capacity assurance waste streams based on waste phase and major constituent.

Waste Streams To Be Reported

States should report only RCRA-regulated waste in the worksheets that present waste generation. States need not report the following when describing waste generation: waste volumes that are regulated only by state law; wastes generated and handled through exempt onsite NPDES processes; exempt onsite in-process recycling (closed loop); exempt onsite treatment and discharge to municipal treatment works; direct discharge to publicly owned treatment works without treatment; and exempt onsite recycling through stills. For planning purposes, states may wish to account for these or other types of regulated waste, but they should include such wastes in separate forms from those used to report RCRA-only regulated waste.

Sources of Data To Report Waste Generation

For purposes of the 1989 assurance, all states should use the 1987 Biennial Report or the equivalent data elements collected in state reports to estimate 1987 calendar year generation of these 17 waste types. While availability will vary from state-to-state, equivalent sources of data include state surveys of generators, waste management facility inventories, state-modified biennial report forms, or waste manifest reports.

Establishing A Base Year

The EPA requests that states use 1987 as the base year to report waste generation. However, if a state has more accurate data for 1985 or 1986 and feels that these data more precisely represent waste generation in their state (because, for example, the state spent considerable resources to collect and analyze that data), they should present these figures and identify the alternate base year. States that choose an alternate base year need not estimate waste generation in 1987.

Units To Report Waste Generation

All waste quantities should be reported in tons per year. Waste expressed in volumetric terms, such as gallons, should be multiplied by the density of the waste in question (tons per gallon, for example) to yield the most accurate conversion into tons. Those states using the new Biennial Report forms will find density information for each waste stream in form GM of Package B, Section III, Question D. In the absence of exact density characteristics, states may use the information presented in the *Technical Reference Manual* (Table XX, based on the density of water) to convert from volume into tons. Table XX also provides several common mass-to-mass conversion factors.

Instructions For All Worksheets

A prototype state hazardous waste generation and handling system is depicted in Figure III–1. States should quantify the waste flows, for each of the 17 capacity assurance waste types, for each of the boxes presented in Figure III–1. Waste quantities should be reported in the worksheets noted below the boxes on the figure. On-site handling, for example, should be reported in Worksheet III–4; all exports should be summarized in Worksheet III–7. Each worksheet is introduced in a general sense in this chapter. The *Technical Reference Manual* describes procedures to complete each worksheet from raw data.

The *Technical Reference Manual* is divided into four sections, based on whether a state computerizes Biennial Report data or not and whether a state is using the old or new Biennial Report forms for the 1987 reporting cycle. States with computerized processing of new Biennial Report data should consult Chapter 1 of the *Technical Reference Manual*. These states will be directed to ensure that their Biennial Report data are arranged in a standard format, consistent with the specifications of the Biennial Report Data System. Once so

arranged, these states can access EPA-provided software that automatically generates all of the required worksheets in their proper formats. Because of the richness of the data collected under the new reporting system, EPA's capacity assurance software will enable states to complete many optional analyses (consult the *Technical Reference Manual* for details).

States with computerized old Biennial Report data should consult Chapter 2 of the *Technical Reference Manual.* They will be directed to follow a similar computer-driven procedure to complete the Worksheets III–1 through III–8. Because the data are generally more limited in the old Biennial Reporting system, fewer optional analyses will be available.

States with manual processing of new Biennial Report data should consult Chapter 3 of the *Technical Reference Manual.* Simplifed procedures will be presented to work directly from the Biennial report forms themselves. These states face perhaps the most time consuming task in completing the current generation and handling worksheets.

States that process old Biennial Report data manually should consult Chapter 4 of the *Technical Reference Manual.* A similar set of simplified procedures will help states make the linkage between raw data and the completed worksheets.

States for which Biennial Report data collection and processing is handled by the appropriate EPA regional office should contact the regional EPA Biennial Report coordinator to determine the applicable set of instructions to follow.

For each of the four sets of the instructions, the *Technical Reference Manual* describes methods to ensure that all states (except as noted below) are able to complete the following types of data manipulations:

- Translating Biennial Report waste codes into 17 waste types;
- Translating UCD waste codes into 17 waste types;
- Translating TSDR Survey and Biennial Report waste management codes to 15 management categories;
- Matching SARA waste types to SARA management categories based either on a national profile or new Biennial report data;
- Separating one-time waste generation from recurrent generation based on new Biennial Report data;
- Presenting both old and new Biennial Report data in the formats specified in Worksheets III–1 through III–8;
- Sorting of exported waste by waste type;
- Sorting of exported waste by management category;
- Summarizing imported waste by state of origin and management category; and
- Summarizing exported waste quantities by type of waste and state receiving waste.

In addition to these manipulations, the *Technical Reference Manual* provides flow diagrams describing the logic used to abstract data from both the old and new Biennial Report and report waste quantities as (1) generated and managed onsite, (2) generated onsite and managed offsite, or (3) imported for management in state.

Instructions For Worksheet III–1

Worksheet III–1 asks states to summarize total in-state generation of RCRA-regulated waste. Total generation is comprised of primary generation (waste by-products of manufacturing processes) and secondary generation (waste by-products of waste treatment processes). While states need not draw this distinction in the worksheet, states accessing EPA's capacity assurance software will be able to generate a separate worksheet for each component.

Worksheet III–1 also asks states to separate total generation into recurrent and one-time waste quantities. Recurrent wastes include both primary and secondary streams attributable to on-going industrial activity. One-time wastes include those that result from isolated events such as equipment cleaning or decommissioning, site cleanup, or off-spec product disposal. Only states using the new Biennial Report forms will be able to separate recurrent from one-time waste generation. States using the old Biennial Report forms, which do not directly support such an analysis, should estimate one-time generation to the best of their ability, following directly support such an analysis should estimate one-time generation to the best of their ability, following instructions in the *Technical Reference Manual.* The *Technical Reference Manual* presents both computerized and manual procedures to assist in this separation.

Instructions for Worksheet III–2

Worksheet III–2 asks states to summarize the waste handling capacity currently available in their state. EPA will supply all the necessary figures to complete this worksheet for the 1989 CAP. Because the basis for EPA's data, however, are the results of the 1986 National TSDR Survey, some capacity figures may be obsolete. It is the state's responsibility to determine whether data supplies by EPA are appropriate for use in the CAP. Therefore, states should use their own capacity figures if they represent a more complete assessment of capacity than the EPA data. States should briefly explain in footnotes to the appropriate worksheets any differences between more recent capacity data and those supplied by EPA.

In subsequent years, states will be responsible for collecting all capacity data is part of their normal biennial reporting requirements.

Instructions For Worksheets III–3 Through III–6

Together, Worksheets III–3 through III–6 constitute the core data describing a state's current hazardous waste management system. In these four worksheets, states are asked to link waste generation to demand for in-state waste management capacity. Waste exports and the effect of waste imports also must be shown, and four types of management capacity must be examined: Total in-state; in-state, on-site, in-state, captive; and instate commercial. Completing these worksheets requires numerous data transactions; states should consult the *Technical Reference Manual* for detailed instructions on their completion.

For convenience, Worksheet III–3 through III–6 also present a separate capacity block to display current and planned future capacity figures. For the 1989 CAP, all capacity data will be supplied by the EPA in individual state reports. Thereafter, states will be expected to collect these data as part of the normal biennial reporting process.

The "exports" column on these worksheets summarizes waste residuals generated as a by-product of waste management processes and exported for further management at out-of-state facilities.

Instructions For Worksheets III–7 and III–8

Worksheet III–7 and III–8 ask states to provide additional detail on their waste exports and imports, respectively. Both old and new Biennial Reports support the presentation of exported waste quantities by waste type and receiving state. Similiary, both reports support the presentation of waste import quantities by waste type and state of origin. All states should consult the *Technical Reference Manual* for details on procedures to complete these worksheets.

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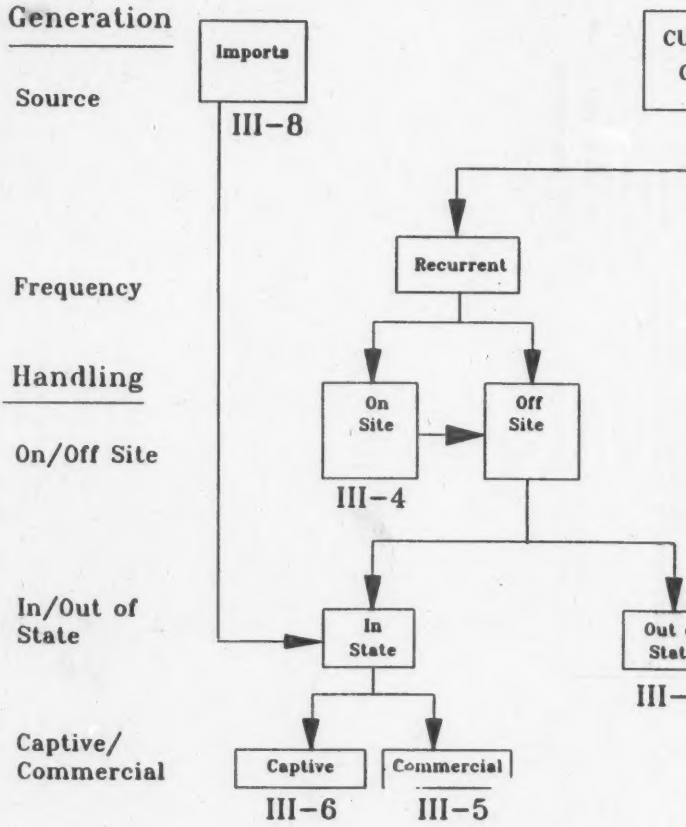
Figure III–1. Prototypical Sta



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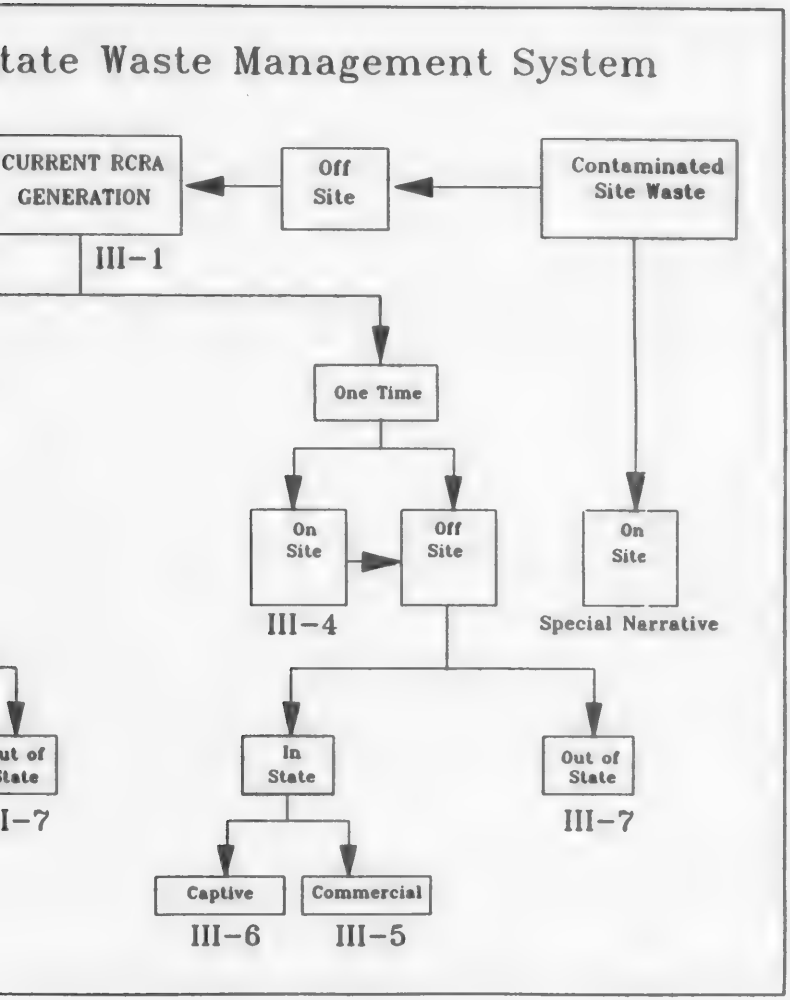

OPY AVAILABLE

WORKSHEET III-1.—SUMMARY OF IN-STATE GENERATION OF WASTE STREAMS IN 1987 (THOUSANDS OF TONS/YEAR)

Waste types	One-time generation	Recurrent generation	Total generation
1. Contaminated Soil			
2. Halogenated Solvents			
3. Nonhalogenated Solvents			
4. Halogenated Organic Liquids			
5. Nonhalogenated Organic Liquids			
6. Organic Liquids, NEC[a]			
7. Mixed Organic/Inorganic Liquids			
8. Inorganic Liquids with Organics			
9. Halogenated Organic Solids/Sludges			
10. Nonhalogenated Organic Solids/Sludges			

WORKSHEET III-1.—SUMMARY OF IN-STATE GENERATION OF WASTE STREAMS IN 1987 (THOUSANDS OF TONS/YEAR)—Continued

Waste types	One-time generation	Recurrent generation	Total generation
11. Organic Solids/Sludges, NEC[a]			
12. Inorganic Liquids with Metals			
13. Inorganic Liquids, NEC[a]			
14. Inorganic Solids/Sludges with Metals			
15. Inorganic Solids/Sludges, NEC[a]			
16. Mixed Inorganic/Organic Solids/Sludges			
17. Other Wastes, NEC[b]			
Total			

[a] NEC=Not Elsewhere Classified.

[b] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

WORKSHEET III-2.—SUMMARY OF IN-STATE WASTE MANAGEMENT PRACTICES (1987 Capacity in Thousands of Tons)[a] CAPACITY

Management category	Capacity			Remaining capacity after 1987
	Utilized	Maximum	Available	
1. Metals Recovery				
2. Solvents Recovery				
3. Other Recovery				
4. Incineration—Liquids				
5. Incineration—Solids/Sludges				
6. Energy Recovery				
7. Aqueous Inorganic Treatment				
8. Aqueous Organic Treatment				
9. Sludge Treatment				
10. Other Treatment				
11. Stabilization				
12. Land Treatment				
13. Landfill				
14. Deep-Well Injection				
15. Other Disposal				

[a] All data provided by EPA for the 1989 CAP.

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Wor

Summary of All In-State

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
Imports				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive

orksheet III–3:

ate Waste Management Activities in 1987

MANAGEMENT CATEGORIES																
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Work

In-State, On-Site Waste

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery	
Contaminated soil					
Halogenated solvents					
Nonhalogenated solvents					
Halogenated organic liquids					
Nonhalogenated organic liquids					
Organic liquids, NEC[a]					
Mixed organic/inorganic liquids					
Inorganic liquids w/organics					
Halogenated organic solids/sludges					
Nonhalogenated organic solids/sludges					
Organic solids/sludges, NEC					
Inorganic liquids w/metals					
Inorganic liquids, NEC					
Inorganic solids/sludges w/metals					
Inorganic solids/sludges, NEC					
Mixed organic/inorganic solids/sludges					
Other wastes, NEC[b]					
TOTAL					
GRAND TOTAL					

CAPACITY DATA- TSDR SURVEY

Utilization 1985					
Available 1986					
Future available 1989					

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/h

rksheet III–4:

e Management Activities in 1987

MANAGEMENT CATEGORIES															
	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Wor

In-State, Captive Waste

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
Imports				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/

rksheet III–5:

e Management Activities in 1987

MANAGEMENT CATEGORIES															
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Work

In-State, Commercial Was

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery	
Contaminated soil					
Halogenated solvents					
Nonhalogenated solvents					
Halogenated organic liquids					
Nonhalogenated organic liquids					
Organic liquids, NEC[a]					
Mixed organic/inorganic liquids					
Inorganic liquids w/organics					
Halogenated organic solids/sludges					
Nonhalogenated organic solids/sludges					
Organic solids/sludges, NEC					
Inorganic liquids w/metals					
Inorganic liquids, NEC					
Inorganic solids/sludges w/metals					
Inorganic solids/sludges, NEC					
Mixed organic/inorganic solids/sludges					
Other wastes, NEC[b]					
TOTAL					
Imports					
GRAND TOTAL					

CAPACITY DATA- TSDR SURVEY

Utilization 1985					
Available 1986					
Future available 1989					

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/ha

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rksheet III–6:

Waste Management Activities in 1987

	MANAGEMENT CATEGORIES														
	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

WORKSHEET III-7.—SUMMARY OF EXPORTED WASTE QUANTITIES IN 1987 BY WASTE TYPE AND RECEIVING STATE (IN THOUSANDS OF TONS)

Waste types	Receiving State (List each relevant State)
1. Contaminated Soil	
2. Halogenated Solvents	
3. Nonhalogenated Solvents	
4. Halogenated Organic Liquids	
5. Nonhalogenated Organic Liquids	
6. Organic Liquids, NEC [a]	
7. Mixed Organic/ Inorganic Liquids	
8. Inorganic Liquids with Organics	
9. Halogenated Organic Solids/Sludges	
10. Nonhalogenated Organic Solids/ Sludges	
11. Organic Solids/ Sludges NEC [a]	
12. Inorganic Liquids with Metals	
13. Inorganic Liquids, NEC [a]	
14. Inorganic Solids/ Sludges with Metals	
15. Inorganic Solids/ Sludges, NEC [a]	
16. Mixed Inorganic/ Organic Solids/ Sludges	
17. Other Wastes, NEC [b]	

[a] NEC=Not Elsewhere Classified.
[b] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

WORKSHEET III-8.—SUMMARY OF IMPORTED WASTE QUANTITIES IN 1987 BY MANAGEMENT CATEGORY AND STATE OF ORIGIN (IN THOUSANDS OF TONS)

State of origin	Tons utilized	Waste Management Category (List all relevant categories)

Definitions Section

Available Capacity. The amount of waste which a treatment, storage, disposal, or recovery facility determines it can process within a single reporting year, or the amount allowed by all relevant EPA permits, whichever is less.

Captive Management Facility. Any treatment, storage, disposal, or recovery unit, process, or operation that is used exclusively to manage the waste produced by another operating unit or units under the same ownership of any facility from which it receives waste.

Commercial Management Facility. Any hazardous waste treatment, storage, disposal, or recovery unit, process, or operation that is generally available to manage the waste of other facilities and is not under the ownership of any facility from which it receives waste.

Equivalent State Data. This phrase refers to common state data, derived from official surveys or manifests, that use the RCRA waste codes to report generation and capacity information. This data is similar to that collected under the old Biennial Report.

Future Available Capacity. The amount of waste a treatment, storage, disposal, or recovery facility determines it can process within a prescribed time period.

New Biennial Report. This refers to the revised EPA reporting system, issued for the 1987 reporting cycle. States may choose whether or not to use the new Biennial Report. New information required by the 1987 Biennial Report include data on waste stream constituents, details on a state's waste minimization activities, and facility capacity information.

Old Biennial Report. This refers to the current official EPA reporting system, last used by all states in 1985. Data requested from the states included quantities of waste generated and amounts of waste treated, stored, or disposed. The same data are still required for the 1987 reporting cycle as minimum requirements.

On-site Management. Any hazardous waste not transferred from the site of its generation for treatment, storage, or disposal. By definition, such facilities are captive.

Utilized Capacity. The actual amount of waste managed by a treatment, storage, disposal, or recovery system within a single year.

Chapter IV—State Waste Minimization Plans

Purpose

The purpose of this chapter is to obtain information on each state's use of waste minimization in the capacity assurance process. (For the CAP definition of waste minimization see the Definitions Section at the end of the Chapter.) While the Agency believes a waste minimization program is a key step toward sound hazardous waste management, EPA recognizes that some states may choose to assure adequate capacity without claiming waste reduction benefits. These states must supply only brief information on their ongoing or planned waste minimization efforts. Such information will be evaluated for completeness only; EPA will not evaluate the waste minimization programs of these states.

States that plan to use waste minimization to help them assure the availability of adequate management capacity must supply documentation on their ongoing and planned efforts. These states must describe the overall strategy of their programs, how they plan to account for waste minimization in their waste generation projections, and how these programs might affect waste generation for the projection years.

General Instructions

To complete the requirements of this chapter, states should respond to the questions contained in the attached forms. States should copy and complete the appropriate forms and include them—along with additional documentation—in their CAP. Not all forms must be completed.

States not using waste minimization programs to reduce capacity demand must complete the following form:

Form I: Legislative Authority. This form requests information on the present legislative authority for a waste minimization program, its general make up, funding, staffing, and any anticipated legislative or programmatic changes.

States that anticipate using waste minimization programs to reduce capacity demand must complete Form I and the following forms:

Form II: Waste Minimization Reduction Estimates. This form requests detailed information on the state's anticipated effect of state and industrial waste minimization efforts, technical basis of these estimates, and measures of effectiveness.

Form III: Program Components Descriptions. This form requests more detailed information on the individual components that comprise the state's waste minimization program.

The information requested in Forms II and III will enable the EPA to assess the reasonableness of the state's proposed goals and activities and to monitor the progress of the state's programs.

A glossary of the terms used to describe the waste minimization program components is contained in the Definitions Section at the end of the chapter. In addition, technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has

assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Evaluation Criteria

EPA plans to evaluate each state's waste minimization plan differently. For states not choosing to incorporate any waste minimization estimates into projections of capacity need, the Agency will simply review the state's submittal for accuracy and completeness. In these cases, the Agency will make no judgment on the adequacy of the particular waste minimization program operated by the state, if any such program is operating or planned.

For states that rely on waste minimization to reduce the demand for waste treatment capacity, the Agency must conduct a more detailed evaluation. For these states, the following must be demonstrated in the CAP:

- The estimated reductions in waste are based on a sound technical evaluation of the potential effects of waste minimization in your state. This does not require a technical analysis of waste minimization potential but an examination from available information to determine how it might apply to your state.
- The resources committed to implementing the waste minimization strategy are consistent with the plan set forth by the states; and,
- The activities for projected accomplishments in waste minimization are reasonable and there is a plan to implement these activities.

Form I: Legislative Authority

All states must fill out this form. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP. Please attach additional information if more space is needed to anwer any question.

Name of Respondent _____
Telephone Number _____
Address _____

1. Does legislative authority exist to implement a waste minimization program in your state? If authority exists through general broad authority, please answer yes and site the authority if known.

—Yes —No?

1a. If yes, what are the titles of the legislation and when was it enacted?

1b. Is future legislation anticipated and when does the state plan to have it enacted?

2. Indicate which of the following waste minimization program components are specifically in use or authorized in your state:

In use	Authorized	
_____	_____	Technical Assistance
_____	_____	Economic Incentives
_____	_____	Waste Exchange
_____	_____	Research and Development
_____	_____	Regulatory Requirements
_____	_____	Education
_____	_____	All programs are authorized under a broad legislative enactment
_____	_____	Other:

3. In your state, are there any pending statutes, or regulations relating to waste minimization that are expected to be enacted within the next two years?

—Yes —No?

3a. Please briefly describe the anticipated changes and their expected impacts on waste minimization in your state.

4. What administrative agency or agencies implement your state's waste minimization program (list all applicable agencies and the waste minimization component they are responsible for).

Agency

Component

5. What is the amount of funding received from the following sources (in thousands of dollars) for your waste minimization program?

—General revenues
—Dedicated taxes (e.g., waste end, feedstock)
—Tipping fees
—Federal Grants
—Other

6. Please estimate the number of person-years of staff supported by the state working on waste minimization.

—State professionals on staff
—Consultants
—Other

7. Do you plan to show any effect on future waste management capacity demand from waste minimization activities in your state?

—Yes —No?

If *Yes* Proceed to Form II, Waste Minimization Reduction Estimates.

If *No* Stop Here

The Waste Minimization Portion of the Capacity Assurance Submittal is Completed.

Form II. Waste Minimization Reduction Estimates

Only those states that anticipate incorporating waste minimization estimates in their capacity projections must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP/Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. Please estimate, using Worksheet IV-1, the amount of waste expected to be reduced (in tons or percent reduction) by waste minimization for each of the 17 waste types of Chapter III for projection years 1989, 1995, and 2009. These estimates should illustrate how you plan to incorporate waste minimization into your waste projection of Chapter V. They should not include anticipated changes in production rates, but should show only those reductions based on waste minimization efforts.

2. Please briefly describe the basis of your technical estimates. A list of bibliographic references and a short narrative describing how they were used in sufficient. Examples of appropriate materal that might be used to develop waste minimization estimates include:

- State surveys of waste generation trends.
- Waste minimization plans prepared by industry in your state (Please describe or include these plans).
- Reports from Advisory Councils on the potential effect of waste minimization for the state.
- Reports from Federal Agencies and Trade and Technical Associations estimating trends in waste minimization applicable to the industries in your state.
- Engineering studies and analysis of potential waste stream changes applicable to industries in your state.
- Programs conducted by non-state agencies such as non-profit organizations that affect the industries in your state.

3. How do you intend to measure the effectiveness of your Waste Minimization Program? (In addition to the information provided in the Biennial Report, indicate which of the following do you plan to evaluate to determine the effectiveness of your waste minimization program.)

—No other measures besides that obtained from EPA's biennial report
—Number of information requests handled
—Number of industries/plants participating
—Savings to industry (cost ratios)
—Change in waste quantity generated
—Change in ratios of waste generated per unit product
—Other

4. How will you acquire this information?

—By examining waste minimization program records
—By conducting industry surveys
—New EPA Biennial Report
—By examining state regulatory files
—Other

5. Briefly describe your comunication strategy with the industrial community.

6. In addition to your waste reduction estimates, are there any other activities in your state (announced programs by one or more key industries to reduce waste pending legislation or regulations component implementation schedule) that might be useful in evaluating your waste minimization program?

Date	Activity
_____	_____
_____	_____
_____	_____

If You Have Shown Waste Reduction Estimates Based on the Effects of Your Waste Minimization Program, Proceed to Form III, Program component descriptions.

Form III: Program Component Descriptions

Only those states that anticipate incorporating waste minimization estimates in their capacity projections and have indicated employing individual waste minimization components in Form I Question 2 must complete this form. This section requests information on the specific components of your waste minimization program. Please complete the sections that are applicable to your state program. Questions on different waste minimization components are presented separately so that they may be distributed to different program officials if necessary. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP. Please attach additional information if more space is needed to answer any question.

Form III includes the following:
III-a Technical Assistance
III-b Economic Incentives
III-c Waste Exchange
III-d Research and Development
III-e Regulatory Requirements
III-f Education

Respondents to each set of questions in this form should attach their name and telephone number should additional information be necessary.

Name of Resonent—_____
Telephone number —_____
Address—_____
_____
_____

1. Please indicate the approximate emphasis that your state places on the following waste minimization components as a percent of your waste minimization budget.

Component	Appoximate percent of budget
Technical Assistance	_____
Economic Incentives	_____
Waste Exchange	_____
Research and Development	_____
Regulatory Requirements	_____
Education	_____
Other	_____
Total	100%

III-a Technical Assistance

1. Indicate which of the following Technical Assistance components are currently in use or proposed for use in your waste minimization program.

Technical Assistance		
On-going	Proposed	
_____	_____	On-site assistance
_____	_____	Information clearinghouse/ Library
_____	_____	Technical workshops
_____	_____	Feasibility studies
_____	_____	Other:

2. For Technical Assistance, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Technical Assistance program (e.g., waste streams, industry categories, or both).
_____
_____

2b. Why did you choose to implement this program?
_____
_____

2c. What problems to implementing the Technical-Assistance program do you anticipate or have you experienced?
_____
_____

III-b Economic Incentives

1. Indicate which of the following Economic Incentives components are currently in use or proposed for use in your waste minimization program.

Economic Incentives		
On-going	Proposed	
_____	_____	Awards/matching grants
_____	_____	Taxes/Fees (e.g., waste-end, front-end, point-of-use)
_____	_____	Low-interest loans
_____	_____	Tax credits
_____	_____	Other:

2. For Economic Incentives, please provide the following information for existing or proposed programs:

2a. Indicate the number of grants provided in the base year as part of this component.
_____
_____

2b. What is the current (or projected) annual budget for grants provided in your waste minimization program as part of Economic Incentives (in thousands of dollars)?
_____
_____

2c. Describe the specific target of the Economic Incentives program (e.g., waste streams, industry categories, or both).
_____
_____

2d. Why did you choose to implement this program?
_____
_____

2e. What problems to implementing the Economic Incentives program do you anticipate or have you experienced?
_____
_____

III-c Waste Exchange

1. Indicate which of the following Waste Exchange components are currently in use or proposed for use in your waste minimization program.

Waste Exchange		
On-going	Proposed	
_____	_____	State-promoted
_____	_____	State-managed
_____	_____	State-financed
_____	_____	Regional or multi-state effort
_____	_____	Other:

2. For Waste Exchange, please provide the following information for existing programs or proposed programs:

2a. What is the current (or projected) annual contribution to the Waste Exchange (in thousands of dollars) that you participate in?
_____
_____

2b. What is the name of the Waste Exchange that you participate in?
_____
_____

2c. Which states participate in this Waste Exchange (Please list)?
_____
_____

2d. Describe the specific target of the Waste Exchange program (e.g., waste streams, industry categories, or both).
_____
_____

2e. Why did you choose to implement this program?
_____
_____

2f. What problems to implementing the Waste Exchange program do you anticipate or have you experienced?
_____
_____

III–d Research and Development

1. Indicate, which of the following Research and Development components are currently in use or proposed for use in your waste minimization program.

Research and Development		
On-going	Proposed	
_____	_____	Options development/ feasibility studies
_____	_____	Pilot scale or demonstration projects
_____	_____	Economic or policy analysis
_____	_____	Manuals for audits or technology implementation
_____	_____	Other:

2. For Research and Development, please provide the following information for existing programs or proposed programs:

2a. What is the current (or projected) annual budget for Research and Development (in thousands of dollars)?

2b. Describe the specific target of the Research and Development program (e.g., waste streams, industry categories, or both).

2c. Why did you choose to implement this program?

2d. What problems to implementing the Research and Development program do you anticipate or have you experienced?

III–e Regulatory Requirements

1. Indicate, which of the following Regulatory Requirement components are currently in use or proposed for use in your waste minimization program.

Regulatory Requirements	
On-going	Proposed
_____	_____ Reporting requirements
_____	_____ Reduction standards
_____	_____ Design or operating standards (e.g. required chemical substitutions) Management standards (e.g. mandatory waste reduction audits, listing on waste exchanges)
_____	_____ Other:

2. For Regulatory Requirements, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Regulatory Requirements program (e.g., waste streams, industry categories, or both).

2b. Why did you choose to implement this program?

2c. What problems to implementing the Regulatory Requirements program do you anticipate or have you experienced?

III–f Education

1. Indicate, which of the following Education components are currently in use or proposed for use in your waste minimization program.

Education	
On-going	Proposed
_____	_____ Governor's or other award programs
_____	_____ Public education (e.g. seminars, workshops, pamphlets)
_____	_____ Outreach
_____	_____ Other:

2. For Education, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Education program (e.g., waste streams, industry categories, or both).

2b. Why did you choose to implement this program?

2c. What problems to implementing the Education program do you anticipate or have you experienced?

WORKSHEET IV–1.—ESTIMATE REDUCTIONS (IN TONS OR PERCENT REDUCTION)

Waste types	Projection years		
	1990	1995	2009
1. Contaminated Soil			
2. Halogenated Solvents			
3. Nonhalogenated Solvents			
4. Halogenated Organic Liquids			
5. Nonhalogenated Organic Liquids			
6. Organic Liquids, NE [a]			
7. Mixed Organic/ Inorganic Liquids			
8. Inorganic Liquids with Organics			
9. Halogenated Organic Solids/ Sludges			
10. Nonhalogenated Organic Solids/ Sludges			
11. Organic Solids/ Sludges NEC [a]			
12. Inorganic Liquids with Metals			
13. Inorganic Liquids, NEC [a]			
14. Inorganic Solids/ Sludges with Metals			
15. Inorganic Solids/ Sludges, NEC [a]			
16. Mixed Inorganic/ Organic Solids/ Sludges			
17. Other Wastes, NEC [b]			
Total			

[a] NEC = Not Elsewhere Classified.

[b] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

Definitions Section

Definition of Waste Minimization

Waste minimization. The reduction, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored, or disposed. Waste minimization includes any source reduction or recycling activity undertaken by a generator that results in: (1) the reduction of total volume or quantity of hazardous waste; (2) the reduction of toxicity of hazardous waste; or (3) both, as long as the reduction is consistent with the goal of minimizing present and future threats to human health and the environment.

Source reduction. The reduction or elimination of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction implies any action that reduces the amount of waste exiting from a process.

Recycling. The use or reuse of a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in an industrial process. It also refers to the reclamation of useful constituent fractions within a waste material or removal of contaminants from a waste to allow it to be reused. As used in this report, recycling implies use, reuse, or reclamation of a waste either on site or off site after it is generated by a particular process.

Characterization of Waste Minimization Terms

Technical Assistance

On-Site Assistance. Comprehensive technical assistance to aid industry in reducing the volume or toxicity of wastes generated. May include consultation on industrial and waste management practices and waste minimization options.

Information Clearinghouse/Library. A data base (electronic or hardcopy) made available to managers involved in waste minimization. Clearinghouses provide access to documents, references, and telephone assistance.

Technical Workshops. Information dissemination programs designed to keep industry and the community up-to-date on programs, technology, waste minimization activities and appropriate regulatory information.

Feasibility Studies. Technical assistance, provided off-site, consisting of process analysis and engineering study utilizing general knowledge. May be based on information gathered from similar industries or previous on-site technical assistance. Project results are usually applicable to assist in solving select ranges of manufacturing or institutional problems.

Economic Incentives

Awards/Matching Grants. Direct payments from the state to hazardous waste generators or others engaged in waste minimization activities. May be structured to encourage various types of waste minimization activities, to assist specific types of firms, or to focus on particular waste streams.

Taxes/Fees. A means by which states create an economic incentive for waste minimization. Front-end taxes can be imposed at or near the beginning of commercial chain of production, throughout the distribution network, and at the point of consumption of selected chemicals and substances. Waste-end taxes may believed on the generation, transportation, storage, treatment, or disposal of wastes.

Low-Interest Loans. Financial assistance that enables firms to reduce the cost of financing investments in processes and technologies that reduce wastes. Usually directed to both small and mid-sized hazardous waste generators who may be unable to obtain commercial credit at an affordable price.

Tax-Credits. A direct reduction in the tax liability of the firm, generally rewarding only capital investments.

Waste Exchanges

Waste generated by one company are provided or sold to another company that can use the waste material in their operation. Recipient companies usually use the waste untreated or subject it to a minimal amount of treatment prior to reuse.

Research and Development

Involves applied hazardous waste research, development, and demonstration projects and may include feasibility studies, pilot- and bench-scale demonstration projects, and economic and policy analyses. Usually funded by government and in some cases the private sector, these projects are typically undertaken by universities and other academic insitutions.

Regulatory Requirements

Reporting Requirements. Requests by the government for generator information sufficient to determine the effectiveness of waste minimization programs. In some cases the companies involved in waste minimization are required to submit their plan as a part of a permit application to the regulating authority for adequacy.

Reduction Standards. Specific targets for reduction over time in the quantity and/or toxicity of certain waste streams.

Design or Operating Standards. Limitations or criteria applied to process design and manufacturing operations, usually specific to particular industries and/or waste streams, to minimize waste generation.

Management Standards. Directed to encourage waste minimization. Requires good management practice standards which may include mandatory audits or listing of wastes on a waste exchange.

Education

Governor's or Other Award Programs. A low-cost means to recognize and honor companies and institutions that have demonstrated outstanding achievement in hazardous waste management.

Public Education/Outreach. Promotional activities designed to keep the public informed of the need for a commitment to hazardous waste minimization. Targeted in general to citizen groups, trade associations, and professional organizations.

Chapter V—Projecting Hazardous Waste Generation, The Demand for Management Capacity, and Capacity Needs

Purpose

This chapter outlines procedures for states to use when projecting hazardous waste generation and its subsequent demand for waste management capacity. Projected total demands are then compared to projected capacities for each of the 15 waste management categories presented in Chapter III. The result is an estimate of projected capacity needs for each waste management category. The completed worksheets and narrative should represent Part 3 of the CAP.

States must project waste generated within their borders in 1989, 1995, and 2009. The 1989 projection year corresponds to the next biennial reporting year. The 1995 projection will present a near-term estimate of demands for waste management after most of the current hazardous waste regulations—the land disposal restrictions in particular—take effect. The law specified that states assure adequate waste management capacity for 20 years, hence the year 2009 projection.

The methods contained in this chapter reflect procedures commonly used today to project waste generation. The Agency recognizes the inherent uncertainty of projections and the limitations of all procedures. For this reason, the Agency does not endorse any one system; states are free to choose the approach that best represents their particular situation. However, all projections must adhere to the following general guidelines:

- Projections must take into account economic expansion or contraction and its effect on the quantity of waste generated by the major sources within the state.
- Projection must account for the effects of waste minimization activities on future waste generation, based on clear documentation as described in Chapter IV and quantified in this chapter.
- Projections must account for non-recurrent wastes (from equipment decommissioning or replacement, materials or product disposal, materials or product spills, closure actions, remedial or corrective actions, or other non-routine sources) as well as waste generated from continuous industrial processes.
- To the extent possible, the state must address the potential effect of regulatory change on future waste generation and management options. EPA will provide a list of key regulations that the states should include in their analysis.

General Instructions

For each of the projection years, states should summarize their projections of waste quantities and effects on waste management capacity using worksheets V–1 and V–2, respectively. Worksheet V–2 is used to calculate waste management demand from in-state waste after subtracting waste exports. Worksheet V–3 is similar to Worksheet V–2, except that it requires states to estimate management capacity demand based on total instate waste generation (including projected exports). Final potential capacity needs are determined in Worksheet V–4, which asks states to report estimated capacity needs after incorporating the effect of waste imports and exports. While the combined effect of imports and exports are used to estimate capacity needs, states also must report the balance of total in-state generated waste (including potential exports) against total in-state available capacity (excluding potential exports). This calculation, also required in Worksheet V–4, will be used by EPA to examine the effect of waste imports and exports on each state's capacity balance.

The following sections provide general instructions on projecting waste from continuous industrial processes using common economic indicators and procedures; and projecting waste generated intermittently, such as that resulting from RCRA and CERCLA cleanups. Much of the analysis conducted for Chapter III will be used to complete this chapter, and similar

expertise will be needed. In addition, states should coordinate their efforts with other state offices responsible for projecting and/or tracking state industrial activity or revenues. To the extent possible waste generation should be based on the same economic forecast information used to project general business activity in the state or region.

Technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has assigned several individuals and phone numbers.

Evaluation Criteria

The Agency recognizes that no single methodology exists that is universally acceptable for projecting hazardous waste generation. Considerable discretion is left to the states to formulate reasonable projection methods. However, the Agency plans to evaluate the waste projections portion of the state's CAP on the following points:

- The underlying economic assumptions used in the projections should reflect existing or official projections of state economic activity unless otherwise justified by the state;
- The projections must account for major waste producing industries and the range of possible changes in the economic behavior of these industries;
- The projections must account for non-recurrent wastes (e.g., CERCLA or RCRA remedial or corrective actions);
- The projections must correctly incorporate the predicted effects of waste minimization as outlined in Chapter IV; and
- The projections must document assumptions regarding waste imports and exports as required in the CAP.

Many states will have the capabilities to provide detailed estimates of future waste generation amounts and their demand for management capacity. Others may not have these capabilities or may choose not to make detailed estimates either because they have limited industrial sources or do not foresee significant economic changes taking place. EPA will accept all projections as long as they show that the state has considered all relevant factors and is not in conflict with other official state policy on economic development.

EPA recognizes that projections made for year 20 will be far less certain than those made over the short term. In the absence of additional information, the EPA will accept linear extrapolation of trends developed through the 1995 projection period.

Projecting Recurrent Waste Generation From Industrial Sources

Using 1987 generation as a baseline, states should first estimate expected generation for projection years 1989, 1995, and 2009 solely on the basis of economic changes. States should then make adjustments to these estimates to account for the expected effects of waste minimization as described in Chapter IV. Finally, states should, to the best of their ability, adjust their projections to account for the effects of pending regulations (listed subsequently in this chapter) on the demand for waste management capacity.

Projecting Waste Generation Based on Economic Expansion or Contraction

Economic change is a combination of two measures: changes in economic base (reflected by the basic composition of the region's industry, including new entrants and closures) and changes in industrial output (defined as the total value of goods and services from current industrial production). The agency does not expect states to forecast changes in their state's economic base, unless such changes are likely and critical—announced plant closures or start-ups of key industries are examples of such critical changes. However, absent such information, states should assume that the set of industries responsible for generating the majority of the state's hazardous waste in the base year will exist over the projection period.

The states should account for the effects of economic forces specific to each state and, ideally, to those industries currently responsible for the majority of waste generated. This involves two steps. First, states should compile a list of those industries that are responsible for generating the majority of waste (as defined by the 17 CAP waste categories) in their state. For states using EPA's new Biennial Report forms, these data are available in Form IC, Section IV (SIC code identification) and either GM or GS (waste quantities).

Second, the waste generation characteristics of these industries should be normalized to some indicator of economic output (discussed subsequently). Projections of the same economic indicator (or growth factors) then can be used to project waste from the industrial category in question. For states in which most of the 17 waste categories are dominated by a single industry or ones having similar growth potential, these growth factors simply may be applied to each of the 17 waste categories as appropriate.

Industries of Interest. Ideally, industrial activity should be forecast for each 4-digit SIC (Standard Industrial Classification) code industry responsible for one percent or more of a state's total waste volume. There are about 450 4-digit SIC industries represented in the Office of Management and Budget's Standard Industrial Classification system. While the mix of major waste generating industries will vary from state to state, most states should find that less than 100 4-digit SIC industries will account for 95 percent to 99 percent of total state generation. In many states, particularly the smaller ones, the majority of hazardous waste quantities will be attributable to perhaps 20 industry groups.

Even though economic projections at the 4-digit SIC code level of detail may provide the most accurate basis for projecting future waste quantities attributable to economic change, states are not required to build sophisticated projections models to track changes at this level. States should choose the level of detail in their economic projections best suited to their industrial bases, level of detail in baseline waste generation data, and technical support available within the state to make projections. Some states may find, for example, that projections at the 2-digit SIC code level are most appropriate. Others may not have access to SIC code information linked to waste generation and may thus choose to project economic change using a statewide growth index such as total state product. All of these methods will be acceptable to the Agency if they are appropriately documented.

Factors for Projection. Actual records of the number of product units manufactured—tons of steel or barrels of oil, for example—are the most certain measures of industrial output because they capture, by definition, actual manufacturing activity within the plant. But using these measures to project future output in 70 to 100 industries would be unnecessarily complex. In the past few years, states have chosen to project economic changes using the following indicators, specific to a target group of 4-digit SIC industries:

- Total employment;
- Production employment;
- Value added by manufacture;
- Value of shipments; and
- Personal income from manufacturing (wages).

States should choose the indicator that most closely approximates in-plant industrial activity, and for which adequate data is available. None of the

indicators above are perfect in this respect but some are better than others. Availability of the data may be the overriding factor influencing the state's decision.

Value of shipments, for example, is routinely reported in national aggregate statistics and at the individual plant level. But this measure does not distinguish between manufacturing and inventories as the source of shipments. Waste generation would be overestimated, for example, if waste was normalized to data that represented shipments from inventories instead of production, since actual production levels (and, hence, waste) in that year would be lower than shipments would indicate. In addition, the double counting associated with cross-shipments in value of shipments data may account for overestimates of plant activity.

Total employment also is routinely reported in national statistics and by individual plants, but changes in employment can misrepresent manufacturing activity if management and production employment change at different rates. In addition, waste generation estimates based on employment will be significantly overestimated if a company headquarters, representing largely management as opposed to production labor, constitutes a significant share of total employment within a given SIC code.

Value added closely parallels manufacturing activity because this measure avoids the problem of inventories associated with value of shipments data. These data are more limited, however, as the national level and they are rarely reported by individual manufacturing establishments.

While production employment is an input measure of manufacturing and not an output measure, it remains a good overall indicator insofar as it parallels manufacturing activity and is generally available at the 4-digit SIC code level regionally. It is important to account for changes in labor productivity, however, in projections of waste generation as a function of production employment. As industries automate, the ratio of waste per production employee may change, leading to over- or underestimates of future waste production if these adjustments are overlooked. In general, as labor productivity increases (the output per production employee rises), more waste will be created per employee in future years than in the baseline year.

Personal income from manufacturing, or simply wages, is another good overall indicator of plant activity. Estimates of personal income from manufacturing are available in national aggregate form, by 4-digit SIC code, and by state.

Sources of Data. The U.S. Department of Commerce (Bureau of the Census) and the U.S. Department of Labor (Bureau of Labor Statistics) collect and publish historical data on value of shipments, value added, total employment, production employment and income from manufacturing at the 4-digit SIC code level, by state or by county. At a minimum, all states can use these data to project future trends based on trends over the past five years. Alternatively, the Bureau of Industrial Economics prepares similar projections for groups of 4-digit SIC industries for the nation as a whole in its annual publication, *U.S. Industrial Outlook*. States can adapt these national projections if they so choose or they can adjust them with state-specific data. The Bureau of the Census' publication, *County Business Patterns*, provides a source of historical data on employment and sales, by industry and by county. Projections of personal income from manufacturing by SIC code and state through the year 2000 are available through the U.S. Bureau of Labor Statistics. Similar projections at the state level may be available from state agencies responsible for employment or labor trends.

Typically, a state economic development office or office of the Governor responsible for revenue projections will prepare its own forecast of industry growth. These productions may be incorporated directly into capacity assurance projections.

Reporting Projections. States should report the results of hazardous waste projections attributable to economic change in column A of Worksheet V–1. A separate Worksheet should be presented for each projection year.

Documenting Projections. States should develop narrative support for the projections of waste generation and demand for management types presented in Worksheet V–1. In particular, the narrative documenting the effects of economic change should explain how growth factors were applied to project waste.

Incorporating the Effects of Waste Minimization

States have the option to reduce demands for waste management capacity in 1989, 1995, and 2000 by promoting waste reduction and projecting its effects. Plans for implementing and accounting for such activities must be documented in Chapter IV. In that chapter, states must identify two key parameters of their waste reduction adjustments: (1) Target percent or tonnage reductions by waste type, and (2) a schedule over which these reductions are expected to take place. In this chapter, states must show how the factors developed in Chapter IV have been incorporated in their projections.

The most straightforward approach is to adjust the expected waste quantities generated in a target year by the quantity expected to be reduced through waste reduction. A simple narrative explanation of how waste reduction factors were applied should be included to support the adjustments made in column B of Worksheet V–1.

Incorporating the Effects of Regulatory Changes on Waste Generation

EPA anticipates that changes in regulations over the projection period will affect both waste quantities (the demand for waste management capacity) and the allowable alternatives for management. Both are expected to affect a state's ability to assure adequate capacity. This section identifies the extent to which states should include the effects of regulatory changes on projections of waste generation. A subsequent section addresses the effects of regulatory changes on capacity supply and on the allowable matching of waste types to management categories.

The effects of regulatory changes on the demand side should be incorporated in column C of Worksheet V–1. Regulatory effects on waste generation also should be documented separately in a narrative statement.

Because of the uncertainty in projecting these effects over a 20-year period, EPA expects the states to account for regulatory change only to the extent that the Agency has published and can make available to the states its Regulatory Impact Analysis (RIA) for each rule, as of October 1, 1988. The RIA will describe likely quantitative effects on waste generation and consequent demands for management technologies. The following is a list of rules that EPA expects to have an impact on capacity assurance, and for which publication of an RIA is expected by October 1.

Land Disposal Restrictions, First Third. Should affect virtually all listed and characteristic wastes and, by extension, all industries generating them. Expected to shift the management of certain waste streams away from land disposal and toward incineration and other treatment options. Also expected to stimulate waste reduction.

Treatment standards must be promulgated by May 8, 1990.

New Listings. Should expand the number of waste streams under regulation; six new wood preserving waste streams will be proposed in September 1988, including two wastewater streams (1.1 million tons/year) and four process streams (45,000 tons/year); two new waste streams to be added in summer 1988 from methyl bromide manufacture (amounts confidential); one new waste stream from petroleum refining to be added in 1988 (200,000 tons/year).

States should estimate the additions (or deletions) to regulated waste volumes attributable to the above rules and record these results in Column C of Worksheet V–1.

Projecting Non-Recurrent and One-Time Only Waste Generation

Non-recurrent waste generation can result from periodic industrial operations (boiler and other process unit maintenance) and RCRA and CERCLA corrective actions and cleanups. Waste generated from these sources—while possibly significant—are much more difficult to project than waste from continuous industrial processes. In the long run, the demand for capacity imposed by one-time wastes may be less important to capacity assurance than the demand imposed by recurrent wastes. Separating one-time from recurrent wastes, therefore, should be in the state's best interest.

EPA recognizes that data for projecting the generation of one-time waste are generally less available and less reliable than data on recurrent waste generation. This section describes possible methods that states may use to make such projections, given current data inadequacies. States are encouraged to develop alternative methods to project one-time waste generation and to fully document their assumptions and procedures.

While data may not always be available to support realistic calculations, states—at a minimum—should attempt to estimate RCRA-hazardous waste produced from the following classes of activities:

- Site remedial actions (from federal Superfund and state clean-ups);
- RCRA corrective actions;
- Underground storage tank cleanup; and
- Site remediation as a result of real estate transfer statutes.

The projected sum of all non-recurrent waste quantities should be reported by waste type in column D of Worksheet V–1 (one worksheet for each projection year). Calculations should be documented in a separate narrative.

Notice of Corrective Actions to Receiving State

To assist states in accounting for the amounts of CERCLA corrective action waste imported into their state, the EPA will inform the recipient state regarding its intention to fund remedial actions and immediate removals that will cause wastes to be shipped to that state. This information will include the source of waste, waste quantity, waste characteristics, proposed treatment or disposal facility to receive waste, and anticipated shipment date. This information will be provided to the recipient state's environmental regulatory agency at least 45 days in advance of the anticipated shipment date. This action will allow the recipient state an opportunity to comment on the consistency of the removal with both the exporting state's CAP and its own plan.

Site Remedial Actions

For many Superfund sites, estimates of the quantities of contaminated site wastes (soils and groundwater) that may require off-site treatment and disposal are available in Records of Decision (RODS). Where RODS have not yet been prepared, more limited information regarding quantities likely to be encountered at Superfund sites may be available in Remedial Investigations, Feasibility Studies, or Hazard Ranking System listings. These documents are available for review in EPA's 10 regional offices. The annual volume of wastes to be removed from these sites is largely a function of the extent of contamination (and hence the decision to ship waste off-site or handle it on-site) and rate of expenditures for site cleanup activities. EPA recognizes that these estimates will be highly uncertain, especially for those sites without approved RODs or for state cleanup sites without comparable documentation.

Where data permit, states should prepare a list of all federal and state Superfund sites for which reliable estimates of the quantity to be handled is available and estimate a time interval over which actual remedial work will be completed. Such estimates may be best made by the State Superfund office or the EPA regional Superfund coordinator. For each site, prepare a listing of the contaminants that predominate and match them as closely as possible to one (or more) of the 17 capacity assurance waste categories. Much of this information should be available in site investigation and decision documents referenced above. In the absence of such information, exclude this site from further consideration.

States should then estimate the quantity of Superfund waste expected to be handled off-site at in-state facilities versus that quantity to be exported. Superfund waste shipped off-site must be manifested like any other waste stream regulated under RCRA. An analysis of current waste manifests may be used to project future in-state handling from exported Superfund waste. Regardless of how states make this estimate, however, it should be fully documented with descriptions of procedures and explanations of assumptions.

RCRA Corrective Action Sites

States should assemble the following information:

(1) From the regional EPA office or the state RCRA permitting office (depending on your state's authorization), compile a list of potential RCRA sites that will require corrective action (be sure to include corrective action as a condition of obtaining a Part B permit plus corrective action as a condition of closure). In most cases, states will be unable to estimate waste quantities or waste volumes to be removed unless a Corrective Measures Study (CMS) has been prepared. The Agency recognizes that as relatively few corrective action sites have progressed to the CMS stage (several years may elapse before a potential site has been fully evaluated), states may be limited in their ability to incorporate the effects of RCRA corrective action into their 1989 CAP. In the absence of these data, states may wish to assume that a proportion of RCRA facilities will require corrective action and document that assumption to the best of their ability.

(2) Estimate the amounts and timing of expected on-site management demands and off-site demands using methods described above for Superfund site estimates.

(3) Estimate the proportion of off-site waste expected to be shipped to in-state facilities and that shipped out of state using information on waste manifest forms. In the absence of an historical record of shipments from RCRA corrective action sites, the states should assume that all removed material will be shipped to in-state facilities, if they now exist. Otherwise assume that they will be exported.

Underground Storage Tanks

While they are regulated separately, corrective action requirements for releases from tanks containing petroleum or hazardous substances are

similar to other cleanup requirements—visibly contaminated soils must be removed. If residual contamination of groundwater or surrounding soils persists, additional cleanup is necessary. Actual levels of cleanup are determined on the basis of site-specific environmental risks and potential exposure. States should include estimates of RCRA-hazardous waste quantities likely to be generated as a result of underground storage tank remediation, only if sufficient data are available. The types of data needed include:

- Inventory of tanks subject to regulation
- Statistics on leakage rates, preferably by type of tank
- Characterization of tank inventory by contents (gasoline, solvents, other organics, inorganics)
- Field estimates of extent of contamination. If these data are available, states should estimate quantities and timing of demand for waste management services using methods similar to those presented for estimating Superfund demands.

Site Remediation from Real Estate Transaction Laws

If applicable, states should include estimates of RCRA-regulated waste generated from site remediation pursuant to state real estate transfer statutes (i.e. New Jersey's ECRA statute) based on trends in past rates of generation, if such data are available.

Total Projected Demands

States should record the sum of columns A through D in column E of Worksheet V–1. This quantity represents the total projected demand for waste management capacity without consideration for the location of handling or of the effects of imports or exports.

Matching Waste Types to Management Categories and Incorporating the Effects of Regulatory Change on Capacity Supply

Total demands for waste management capacity should be brought forward from Column E of Worksheet V–1 and distributed among the 15 waste management categories in Worksheet V–2 in such a way that none of the rules expected to be in place in each projection year would be violated. Most untreated liquid and sludges, for example, should be banned from land disposal by 1995; thus, no waste of this nature should be matched with land disposal in Worksheet V–2, unless it first undergoes some treatment. States should briefly describe the assumptions behind their projected matches of waste types to management categories.

States also should estimate the demand for RCRA capacity imposed by non-regulated waste. EPA will provide estimates of these data as of 1986 from the TSDR Survey. States can hold this level of demand steady over the projection period or adjust it up or down, consistent with state policies on the proper handling of non RCRA-regulated waste. These entries should be documented in a separate narrative.

Projecting Efforts. States may show level, reduced, or increased exports (relative to 1987 levels) in the final column of Worksheet V–2, to the extent that they do not violate the "reasonableness" criteria of Appendix A. EPA will assume that the pattern of exports (the states to which different quantities of exports are sent) in the projection years will remain the same as the pattern of exports in 1987 as noted in Worksheet III–7. If a state believes that this pattern will change in any projection year, a narrative statement should accompany worksheet V–2, explaining the changes. For example, a state might enter into an agreement with another state that changes the pattern of export flows to that state, as reflected in both states' CAPs.

Worksheet V–3 is similar to V–2, except that it asks states to determine the effect on management capacity of all projected in-state waste, including exports. The results of both Worksheets will be used to estimate capacity need in Worksheet V–4.

Calculating Hazardous Waste Management Capacity Needs

Using Worksheet V–4, states must determine the amount of management capacity potentially needed in the state over the next 20 years. In determining these needs, the state must make adjustments to account for on-site and captive handling and describe assumptions on waste imports and exports.

Adjustments for On-Site and Captive Handling

For purposes of assuring capacity, states can assume that all waste (or the proportion of total waste) currently managed on-site will continue to be managed on-site, unless the state believes regulatory changes or market forces will alter this pattern. If such shifts are anticipated, states should document the assumptions leading to this conclusion. Similarly, states can assume that all waste (for the proportion of total waste) now handled in captive facilities will be handled in captive facilities in the projection years.

In either case, states should retrieve the appropriate data from Chapter III, Worksheets III–3 and III–4 and present their best estimate of on-site and captive handling in Worksheet V–4 (a separate worksheet for each projection year). The first row of Worksheet V–4 should be brought forward from the column totals of Worksheets V–2 and V–3.

Projecting Commercial Capacity Needs

States should calculate their potential need for additional in-state waste management capacity using the top block of rows in Worksheet V–4.

These calculations use the demand projection figures obtained from Worksheet V–2, which subtract the quantities of waste projected to be exported by the state (see "Projecting Exports," page V–7). To calculate "Total Demand With Imports, Excluding Exports," total demand estimates first must be transferred from the last row of Worksheet V–2 (for each appropriate projection year). Capacity demand directed to on-site and captive facilities next must be subtracted (see discussion above), and demand due to projected waste imports must be added.

Projecting Waste Import Demand. States may hold imports constant to 1987 levels—or allow them to grow—in their demand projections without providing additional narrative to EPA. If imports are shown to decline. The assumption of declining imports would be acceptable if it corresponds with CAP of the state exporting the waste, or if it is based on the importing state's assumption that export practices from other states will change over time in accordance with the process of Appendix A. If an assumption of declining imports is not supported by other states' CAPs, then the importing state must fully document the basis of its assumption.

Final Calculation of Demand. In estimating final demand, states may claim all available capacity projected as available through 1989, based on their analysis in Chapter III. Data on 1989 commercial capacity should be obtained from Worksheet III–6. The predicted 1989 commercial capacity should be subtracted from the total commercial demand figures in Worksheet V–4 to obtain an estimate of capacity shortfall (or excess) in each projection year. These figures will form the basis of capacity need plans as described in Chapter VI.

Calculating the In-State Capacity Balance. The bottom block of rows in Worksheet V–4 are used to calculate the balance of total in-state commercial capacity (excluding import demand)

against total in-state waste generation (including potential waste exports). To complete these calculations, states first should transfer the demand estimates from Worksheet V–3 (for each appropriate year) to Worksheet V–4 (for each appropriate year). Subsequent calculations then are similar to those described above (for the top block of rows), except that import effects are neglected.

The result of these calculations will be used by EPA to assess the effect of waste imports and exports on the commercial capacity contained in each state. They will not be used as a basis for assessing future need.

Plans to Address Capacity Shortfalls

States that show an excess of management capacity in Worksheet V–4 for the projection years 1989, 1995, and 2009 are not required to present plans for addressing capacity shortfalls. These states must only supply brief information in Chapter VI.

States that show a shortfall of management capacity in Worksheet V–4 for projection years 1989, 1995, and 2009 must describe their procedures in Chapter VI to create new capacity through either new or expanded facilities in the state. States may choose not to meet the entire shortfall by creating new capacity. In this case they must revise their numbers for waste minimization (Chapter IV) and waste exports and recalculate Worksheet V–4.

WORKSHEET V–1.—SUMMARY OF IN-STATE WASTE QUANTITIES PRODUCED IN PROJECTION YEAR ——

[All in tons/year]

Management Technology	Projected Demand From Recurrent Waste Generation A	Adjustment of Waste Reduction B	Adjustment of Regulatory Change C	Demand from One-Time Waste D	Total Demand (A+B+C+D) E
1. Contaminated Soil					
2. Halogenated Solvents					
3. Nonhalogenated Solvents					
4. Halogenated Organic Liquids					
5. Nonhalogenated Organic Liquids					
6. Organic Liquids, NEC					
7. Mixed Organic/Inorganic Liquids					
8. Inorganic Liquids with Organics					
9. Halogenated Organic Solids/Sludges					
10. Nonhalogenated Organic Solids/Sludges					
11. Organic Solids/Sludges NEC					
12. Inorganic Liquids with Metals					
13. Inorganic Liquids, NEC					
14. Inorganic Solids/Sludges with Metals					
15. Inorganic Solids/Sludges, NEC					
16. Mixed Inorganic/Organic Solids/Sludges					
17. Other Wastes, NEC [a]					
Total					

[a] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams invidually on a separate line if their waste quantity exceeds 5 percent of the total stated waste quantity.

Note: NEC = not elsewhere classified.

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Work

Demand for Waste Ma
After

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery	
Contaminated soil					
Halogenated solvents					
Nonhalogenated solvents					
Halogenated organic liquids					
Nonhalogenated organic liquids					
Organic liquids, NEC[a]					
Mixed organic/inorganic liquids					
Inorganic liquids w/organics					
Halogenated organic solids/sludges					
Nonhalogenated organic solids/sludges					
Organic solids/sludges, NEC					
Inorganic liquids w/metals					
Inorganic liquids, NEC					
Inorganic solids/sludges w/metals					
Inorganic solids/sludges, NEC					
Mixed organic/inorganic solids/sludges					
Other wastes, NEC[b]					
Non-RCRA Waste					
TOTAL					

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/h

ksheet V–2:

anagement in Projection Year ____
r All Adjustments

MANAGEMENT CATEGORIES														
Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	EXPORTS	TOTAL

/hazardous mixed, gases, lab packs, & PCBs mixed with RCRA wastes.

Works

Demand for Waste
All (Including Exports) In-Stat

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery	Incineration — Liquids
Contaminated soil					
Halogenated solvents					
Nonhalogenated solvents					
Halogenated organic liquids					
Nonhalogenated organic liquids					
Organic liquids, NEC[a]					
Mixed organic/inorganic liquids					
Inorganic liquids w/organics					
Halogenated organic solids/sludges					
Nonhalogenated organic solids/sludges					
Organic solids/sludges, NEC					
Inorganic liquids w/metals					
Inorganic liquids, NEC					
Inorganic solids/sludges w/metals					
Inorganic solids/sludges, NEC					
Mixed organic/inorganic solids/sludges					
Other wastes, NEC[b]					
Non-RCRA Waste					
TOTAL					

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/haz

BILLING CODE 6560-50-C

ksheet V–3:

e Management Capacity from ate Generation in Projection Year _____

MANAGEMENT CATEGORIES													
Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	TOTAL

azardous mixed, gases, lab packs, & PCBs mixed with RCRA wastes.

WORKSHEET V–4.—SUMMARY OF DEMAND FOR COMMERICAL HAZARDOUS WASTE MANAGEMENT CAPACITY IN PROJECTION YEAR

	Waste Management Category						
	Thermal Destruction (all in tons/year)			Final Disposition			
	Liquids Incineration	Solids Incineration	Energy Recovery	Land Treatment (in tons/year)	Deepwell Injection (in tons/year)	Landfill (tons)	Other disposal
Total Demand with Imports, Excluding Exports							
– waste handled on-site							
– waste handled in captive facilities							
+ waste imports							
= Demand for Off-Site Commercial Waste Management Capacity							
– commercial capacity available 1989							
= Estimated Capacity Shortfall (if positive) Estimated Capacity Remaining (if negative)							
Total Demand Excluding Imports, Including Exports							
– waste handled on-site							
– Waste handled in captive facilities							
= Demand for Off-Site Commerical Waste Management Capacity							
– commercial capacity available 1989							
= In-state Capacity Balance							

WORKSHEET V–4 (CONTINUED).—SUMMARY OF DEMAND FOR COMMERICAL HAZARDOUS WASTE MANAGEMENT CAPACITY IN PROJECTION YEAR ——

	Waste Management Category							
	Reuse/Recovery (all in tons/year)			Treatment (all in tons/year)				
	Metals	Solvents	Others	Organic *	Inorganic *	Sludge	Stabilization	Other
Total Demand with Imports, Excluding Exports								
– waste handled on-site								
– waste handled in captive facilities								
+ waste imports								
= Demand for Off-Site Commercial Waste Management Capacity								
– commercial capacity available 1989								
+ Estimated Capacity Shortfall (if positive) Estimated Capacity Remaining (if negative)								
Total Demand Excluding Imports, Including Exports								
– waste handled on-site								
– waste handled in captive facilities								
= Demand for Off-Site Commercial Waste Management Capacity								
– commercial capacity available 1989								
= In-State Capacity Balance								

*Note: Separate reporting for aqueous inorganic and aqueous organic treatment is optional in 1989, but mandatory in and there after.

Chapter VI—Documenting State Plans for Increasing In-State Capacity

Purpose

This chapter requests information on each State's procedures that affect or facilitate the development of hazardous waste management capacity. Because the CAP addresses a 20 year timeframe, most states will not have adequate capacity in-place today to handle all the hazardous waste generated over the next 20 years, making it necessary for States to document their procedures to allow or facilitate capacity development.

Chapter V of the guidance document asked each state to summarize their projected need for hazardous waste management capacity over the next twenty years, after taking into account waste minimization efforts and waste exports. All states showing a shortfall in their hazardous waste management capacity in their projection years must describe their plans for addressing this shortfall through their facility siting process and their procedures to process existing facility expansion applications. States projecting hazardous waste capacity shortfalls within the projection period through 1995 also must report key interim and final siting milestones, such as site designation, permit submission, permit approval, and expected construction start.

General Instructions

To complete the requirements of this chapter, states should respond to the questions contained in the attached forms. States should copy and complete the appropriate forms and include them in the CAP. Additional documentation should be included as needed.

Not all forms must be completed. States that project sufficient capacity through year 20 must only complete

Form I, "General Siting Description". This form requests general information on state procedures that affect or facilitate the development of new hazardous waste capacity. It covers such items as the state's general siting process, preemption and override authority of local and state government, and laws that restrict the operation or configuration of a facility.

States that project a capacity shortfall in any projection year after taking into account waste minimization and waste exports must complete both Form I and Form II, "Capacity Development Plans", requests a more detailed description of topics covered under Form I.

Finally, those states that project a shortfall in 1989 or 1995 must complete all forms up through Form III, "Milestones and State Review". This form requests information on the state's anticipated progress in meeting its shortfall.

A glossary of the terms used in this Chapter is contained in the Definition Section at the end of the chapter. In addition, technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Evaluation Criteria

The EPA recognizes that many different state approaches exist for planning and overseeing the development of new hazardous waste management capacity. Each state has and probably will employ a different strategy to ensure that it has adequate capacity now and in the future. The Agency therefore will focus its evaluation on two key areas:

- the ability of a state program to allow or facilitate the development of adequate capacity when needed; and,
- The degree of a state's reliance on out-of-state capacity as a substitute for developing in-state capacity.

If a state has shown in Chapter V that it plans to construct new capacity to meet projected needs, EPA will evaluate the ability of a state program to meet the expected shortfall. Because the Agency recognizes that states can do many things to promote, facilitate, or simply allow the development of new capacity, the Agency will concentrate its review on items that may indicate a flawed program or that actually hinder siting. Practices or policies that may either hinder new capacity development or indicate program difficulties include the following:

- A state siting process that is subject to strong local preemption powers not firmly gounded in environmental, health, and safety concerns. An inability of the state to appeal or rectify such preemption.
- The absence of a siting program having clearly defined steps and procedures. A lack of sufficient opportunity for public review and comment. The absence of clear time lines between permit review, comment, and approval or denial.
- The enactment of rules that may be viewed as discriminatory, such as placing limits on facility size, type of waste allowed at the facility based on origin of the waste, or outright prohibition of waste management facilities if not based on environmental, health, and safety concerns. (This would not include limitations that may be agreed to by the facility developer and the host community as part of siting process negotiation.)
- A state having sufficient demand for new hazardous waste capacity accompanied by a history of failed siting efforts.

The Agency also will examine the states reliance on out-of-state hazardous waste management capacity to determine if it conflicts with the requirements set forth in Appendix A.

Form I: General Siting Description

All states must fill out this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. Does your State have a formal hazardous waste management facility siting process in addition to the RCRA permitting process?
—Yes —No?
If Yes,
1a. What are the titles of the legislative authorities and when were they enacted?

2. Does your State have a siting agency that is distinct from the RCRA regulatory agency?
—Yes —No?
If Yes,
2a. What are the titles of the legislative authorities and when were they enacted?

3. Please describe (in a brief narrative) the procedure used to review facility applications, select sites (if applicable), review permits, and provide public comment. Please indicate the time required to complete major steps, such as the time required between permit application and approval/denial. Include an explanation of the appeals process available to the siting applicant, the host community, and siting opponents. (Where applicable, please note how a particular activity differs for expansion of existing facilities compared to siting of new facilities. If the process is significantly different for new sitings and expansions, please prepare two separate descriptions.)

3a. If possible, please construct a flowchart showing the major steps of the siting process as described in your narrative. Where known, indicate the time necessary for an application to proceed through each required step. (See example contained in back of this chapter.)

4. Please describe (in a brief narrative) the outcome of recent siting applications since 1985.

5. The following questions address basic laws and rules that may affect the siting or expansion of new facilities. When answering the following questions, please note the relevant law or rule (if applicable) and briefly describe any special circumstances or constraints that apply.

5a. Do local governments in your State have the authority to approve RCRA permits?
—Yes —No?
If Yes, please list the applicable regulation or authority.

5b. Do local governments in your State have the power to prohibit facility siting by the use of zoning ordinances?
—Yes —No?
If Yes, please list the applicable regulation or authority.

5c. Does your State have the power to override local zoning authority and/or preempt local zoning powers?
—Yes —No?
If Yes, please list the applicable regulation or authority.

5d. Does your State have the power to override and/or preempt any other local authorities that could prohibit or restrict capacity development?
—Yes —No?
If Yes, please list the applicable regulation or authority.

5e. Are there State restrictions on the size or number of new or expanded facilites?
—Yes —No?
If Yes, please explain.

5f. Does the State allow facilities to be built that have greater capacity than that needed to treat in-State waste?
—Yes —No?
If No, please explain.

6. The following pertain to laws and regulations that affect interstate transportation of hazardous waste.

6a. Does your State assess a fee on the generation of hazardous waste?
—Yes —No?
If Yes, please explain.

6b. Does your State assess a fee for the treatment or disposal of hazardous waste?
—Yes —No?
If Yes, please explain.

6c. Does your State have the power to establish differential fees on waste that is imported for treatment and/or disposal?
—Yes —No?
If Yes, please explain.

6d. Are any limits placed on the size of the differential fee?
—Yes —No?
If Yes, please explain.

6e. Do local or county governments have the power to establish differential fees on waste that is treated and/or disposed of in their jurisdiction?
—Yes —No?
If Yes, please explain.

7. In addition to the CAP, has the State conducted a needs assessment?
—Yes —No?
7a. Does your State plan to use the CAP to assess need?
—Yes —No?
7b. If not, what do they plan to use to determine the need for new facility capacity?

8. Does the needs assessment indicate a potential shortfall (in commercial capacity)?
Projection Year 1989 —Yes —No
Projection Year 1995 —Yes —No
Projection Year 2009 —Yes —No

If You Answered Yes to Any Part of Question 8, You Must Complete Form II.

Form II. Capacity Development Plans

Only those states that project a capacity shortfall in any projection year must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. How much new commercial facility capacity will be needed by 1989, 1995, and 2009 to meet the shortfall anticipated for hazardous waste management capacity? See Worksheet VI–1.

2. How does your State intend to develop new in-State capacity as identified in its needs assessment?
—By siting new facilities
—Through the expansion of existing facilities
—Both
—Other, please explain

3. If you intend to meet new capacity needs by increasing waste exports beyond the 1987 levels, please explain why. Please indicate whether such plans are based on management planning efforts with other states, industries increasing exports to captive facilities, any environmental or economic considerations that restrict development of in-State capacity, or projections of current patterns.

3a. Have you contacted states that now receive your waste exports prior to completing your CAP?
—Yes —No?
3b. If Yes, will the CAPs of these states reflect your projected export patterns?
—Yes —No?
Please list the states that you have contacted.

3c. Are you participating in a multi-state hazardous waste management planning effort?
—Yes —No?
3d. Please list the participating states.

4. Does your State have siting criteria?
—Yes —No?
If Yes, please attach information describing your siting criteria.

5. Are any of the following methods used in your State to select sites or encourage site development (check all that apply)?
—State selection of specific site
—State purchase of specific site
—State inventory of suitable sites
—Private nomination of site
—Local nomination of site
—Permit fast tracking
—Other, please list:

6. How is the public allowed to participate in the siting process in order to affect the siting decision?
—Adjudicatory public hearings
—Informational public hearings
—Local advisory committee
—Local representatives on siting board
—Other, please explain

7. Is financial assistance provided to the local community to allow it to review the siting application and conduct an environmental or health assessment?
— Yes — No?
If Yes,
7a. Who supplies the funds?
—State
—Siting applicant
—Other, please explain

7b. What is the maximum amount of funding a community may receive?
$_____
7c. Are there any restrictions on the use of the funds?
— Yes — No?
If Yes, what are they?

8. Does your State use negotiation in its siting process?
— Yes — No?
If Yes, please explain.

9. Are dispute resolution procedures used in your State to settle differences on siting issues?
— Yes — No?
If Yes, please explain.

10. Is compensation to host communities used in your State?
— Yes — No?
If Yes, please explain.

10a. Who is responsible for providing the compensation?
—The site developer
—The State
—Other, please explain

10b. What type(s) of compensation is used?
—Cash payments
—Fees based on waste management activities
—Insurance
—Emergency training and equipment
—Operating concessions
—Other, please list:

11. Is your State authorized to build and/or operate a hazardous waste management facility?
— Yes — No?
If Yes, please explain (also please indicate if you presently own or operate any facilities).

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States Projecting a Capacity Shortfall in 1989 or 1995 Must Complete Form III, Milestones and State Review.

States Only Projecting a Shortfall in 2009 Stop Here.

Form III: Milestones and State Review

Those states that have projected a shortfall for 1989 or 1995 must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please copy this form if more space is needed to describe your State's milestones.

Name of Respondent _____
Telephone number _____
Address _____

1. States must complete a schedule of capacity development milestones for each type of management capacity needed. These milestones should reflect key decision dates for different types of capacity. It is not necessary to list specific facilities. Please use Worksheet VI–2 to report these milestones.

However, states should also include milestones for approval of RCRA Part B permits for established facilities now operating under interim status.

The schedule of milestones in Worksheet VI–2 can include any steps in the State siting process that would indicate the development of needed capacity. For example, states with developed programs could define their milestones by specifying dates by which the following activities should be completed:

- Enter in a multi-state hazardous waste planning effort.
- Designation of candidate sites.
- Letter of intent to develop a facility from a private party (or equivalent commitment from a public entity).
- Identification of host community.
- Permit submission.
- Draft permit approval.
- Final permit approval.
- Construction start.
- Operation start.

States without a formal siting program also should report the above activities. However, they also may indicate key milestone dates for developing their own siting program. This would include activities such as the following:

- Passage of siting legislation.
- Establishment of statewide siting criteria.
- Creation of a State board or authority.
- Development of siting regulations.

States are not restricted to the program elements suggested here, but are encouraged to achieve a level of specificity in defining milestones.

2. What are the likely measures your state will take if you do not meet an anticipated milestone?

—The State will become more active in capacity development

—The State will change its siting process

—The State will temporarily increase exports

—Other, please explain

_____

_____

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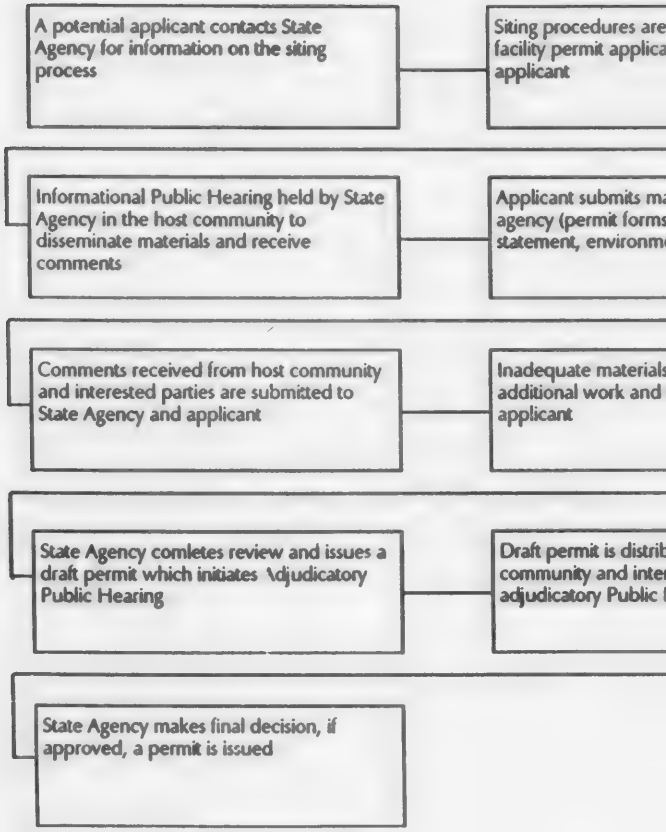
SITING PR

(See For


A potential applicant contacts State Agency for information on the siting process
Siting procedures are
facility permit applica
applicant
Informational Public Hearing held by State Agency in the host community to disseminate materials and receive comments
Applicant submits ma
agency (permit forms
statement, environm
Comments received from host community and interested parties are submitted to State Agency and applicant
Inadequate materials
additional work and
applicant
State Agency comletes review and issues a draft permit which initiates Adjudicatory Public Hearing
Draft permit is distrib
community and inte
adjudicatory Public
State Agency makes final decision, if approved, a permit is issued

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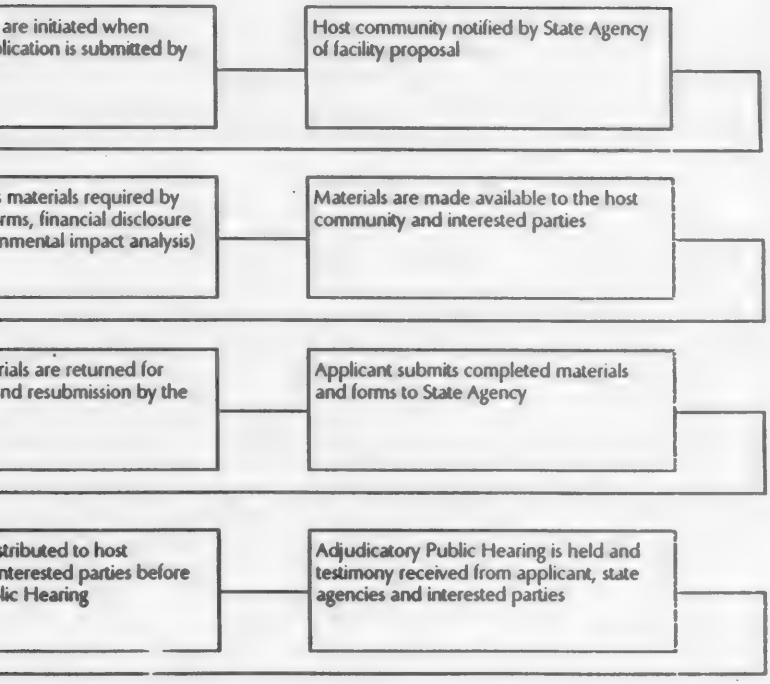
PROCESS FLOWCHART

Form I, Question 3a.)


are initiated when
lication is submitted by
Host community notified by State Agency of facility proposal
materials required by
rms, financial disclosure
nmental impact analysis)
Materials are made available to the host community and interested parties
rials are returned for
nd resubmission by the
Applicant submits completed materials and forms to State Agency
tributed to host
nterested parties before
lic Hearing
Adjudicatory Public Hearing is held and testimony received from applicant, state agencies and interested parties

WORKSHEET VI–1.—TYPE OF MANAGEMENT CAPACITY NEEDED

[Tons per year]

Waste Management Categories	Projection Years		
	1989	1994	2009
1. Metals Recovery			
2. Solvents Recovery			
3. Other Recovery			
4. Incineration: Liquids Only			
5. Incineration: Solids/Sludges			
6. Energy Recovery: Kilns, Boilers, Furnaces			
7. Aqueous Inorganic Treatment			
8. Aqueous Organic Treatment			
9. Sludge Treatment			
10. Other treatment			
11. Stabilization			
12. Land Treatment			
13. Landfill			
14. Deep-well Injection			
15. Other Disposal			

WORKSHEET VI–2.—CAPACITY MILESTONES

Type of management capacity (from list of 15 categories):	
Date	Milestone Description

Definitions Section

Siting Process. This encompasses all elements of screening and evaluation involved in gaining approval for a specific hazardous waste facility at a specific site. The process includes site selection (when required), application for the various required state, national, and local permits, review of those applications by the appropriate government agencies in accordance with criteria previously specified, hearings, other forms of public involvement where applicable (local advisory committees, negotiation), submission and review of application amendments and revisions, and final decision (approval or denial of the application).

Siting Criteria. These are constraints and guidelines specified by each state for evaluating the suitability of individual sites proposed for hazardous waste management facilities. These criteria can include outright prohibitions against siting facilities in certain environments (in 100 year flood plains) or can be more general and list the variables that should be taken into consideration in evaluating proposed sites (population density and evacuation plans).

Milestone. This is a task or achievement to be accomplished by a specific point in time. Milestones can be stated quantitatively, such as tons of incineration capacity in operation by a certain date, or can be described qualitatively as unique policy components, such as implementation of certain defined procedures in a state siting program by a specified date.

Needs Assessment. This is an evaluation of current and future needs for hazardous waste management capacity. An assessment includes estimation of current and projected future waste generation, evaluation of current and imminent capacity, and calculation of capacity shortfalls or needs for increased management capacity. It may also include an analysis of current and suggested state policies in hazardous waste management. A needs assessment provides a basis for state planning for future hazardous waste management, helping the state to choose among alternative approaches to satisfying demand for sound management capacity, and publicizes the state's market needs to private sector suppliers. A needs assessment is a statement of the state's position in waste management and does not necessarily lead to the state's active involvement in capacity expansion or site selection.

Negotiation. This consists of mediated and nonmediate interactions between the proponents of a specific hazardous waste management facility and representatives of the host community and other communities that are likely to be affected by the proposed facility. Negotiation can entail clarification and resolution of issues and concerns, development of alternatives, and specification of compensation and mitigation measures accepted by both parties.

Compensation. This includes services and payments made to a host community and other affected communities to help allay burdens imposed by their proximity to a harzardous waste management facility. Compensation can be cash payments (a given payments per ton processed) or provided in-kind (free clean-up of public hazardous waste spills, company maintenance of access roads).

Mitigation. These are measures implemented to minimize the impact of a hazardous waste facility on the surrounding population and the environment. Whereas compensation is meant to balance burdens, mitigation is intended to reduce the burdens carried by host and nearby communities. Mitigation includes restrictions on operating hours and procedures, limitations on types and volumes of waste accepted, stricter engineering specifications, and construction of additional safety features.

Preemption. The state has the authority to make a decision in an area normally reserved for local or county government. That is, the state substitutes its authority for local or county authority in a specified policy area so that a decision normally left to a lower level of government is taken at a higher level of government which is not required, under preemption, to defer to local preferences.

Override. The state has the authority to overrule a decision made at a lower level of government. With regard to hazardous waste management, the local jurisdiction first evaluates the case and makes a decision; this decision can then be appealed to the higher authority which has the right to overturn the decision if it feels justified.

Facility Expansion. This is any increase in capacity of an existing hazardous waste facility. This can refer to contruction of plant additions or substitution of new equipment for older equipment with a concomitant ability to handle greater volumes to waste.

Siting Application. This is a request for state agency approval of a specific hazardous waste facility on a designated site. Application contains engineering specifications of the facility, description of wastes and technical processes, information on the developer, as well as environmental and geological description of the site and surrounding area.

Adjudicatory Hearing. This is a public hearing to gather evidence and arrive at a decision on a proposed facility, structured like a judicial review. Interested parties present evidence to influence the final decision and are generally subject to cross examination as part of the process. Based on evaluation of the evidence presented the hearing examiner rules on the suitability of the proposed facility (granting or denying a permit) or makes a recommendation to the permitting authority on whether or not the facility should be approved.

Informational Hearing. This is a public hearing for dissemination of information and airing of opinions on a proposed facility. Representatives of all interest parties can make presentations and discuss areas of concern; evidence

is collected and turned over to permitting authories for consideration; the hearing administrator presides and ensures proper procedures but does not rule on the proposed facility.

Appendix A.—The Interstate Agreement and EPA's Role in Analyzing and Resolving Interstate Issues

This appendix outlines the procedure through which states that claim the availability of out-of-state waste management capacity in their CAP can assure EPA of this availability. It establishes a system under which commercial management capacity will be available on a national basis to all states, but includes a process to correct possible failures of net exporting states' to reduce out-of-state waste shipments because of a current and projected lack of native waste management capacity (in the absence of economic and environmental reasons for its absence).

Summary

The process begins with the initial CAP submittal. Each CAP must be accompanied by the Interstate Agreement of Chapter II signed by the Governor of the state or designee. By executing the agreement, the Governor or designee indicates an awareness of the current status quo of interstate waste shipments; promises participation in the EPA process to plan, analyze, and address the interstate transport and disposal of hazardous waste; and confirms the state's willingness to carry out the activities described in the CAP. The Agency then will institute the following procedures to address interstate waste management issues:

1. After submission of the CAPs in October 1989; EPA will prepare and publish a national analysis of the current and projected interstate waste flows contained in each states' CAP.

2. Based on the results of the first CAP submissions, EPA will refine the reasonableness criteria set forth in this appendix and publish them for review and comment. The reasonableness criteria will be used, in part, to identify states showing high levels (in net terms) of waste exports possibly due to capacity shortfall in the exporting state. States may be in "violation" of the reasonableness criteria if their export volumes are encouraged by state policies, if they are sufficient to support the development and operation of a commercial facility (for a particular waste stream), or if they result from state policies that discourage the creation of in-state management capacity. Violations would not apply to states that have entered into arrangements with other states supporting these export practices, that intend to lower waste exports through waste minimization or through new or expanded capacity, or that export waste in quantities not sufficient to support a commercial treatment or disposal facility. To help in the analysis of potential export violations, EPA will publish initial estimates of waste stream volumes sufficient to support development and operation of a new commercial management facility under acceptable practices. These estimates will be used as guidelines for further analysis and cannot, in themselves, be used to determine violations. Actual violations of the reasonableness criteria will be determined by EPA only, as described in Step 5.

3. A forum (or forums) to raise and discuss interstate issues will be convened under the auspices of EPA. This forum will be used to address the reasonableness criteria published by EPA and to identify those states that may be in violation. States will be encouraged to resolve possible violations by entering into multi-state planning efforts and by revising their initial CAP submissions. The nature of the forum (or forums) will be determined by EPA after publication of the initial CAP analysis and refinement of the reasonableness criteria.

4. If interstate issues between affected states cannot be resolved through discussion, a process for resolving such issues will be implemented under the auspices of EPA at the request of the states affected. This process may include third-party facilitation, mediation, arbitration, or other informal dispute resolution mechanisms.

5. States will be given an opportunity to revise their initial CAPs to correct possible violations of the reasonableness criteria identified in Steps 3 and 4. If, after a specified period of time, potential violations and disputes cannot be resolved, EPA—upon a petition from an affected state or on its own initiative—will conduct an adjudication (which may include fact-finding) to determine whether any state is engaging in actions violating the reasonableness criteria. If EPA concludes that the actions are not consistent with the reasonableness criteria, EPA will withdraw approval of the offending state's CAP, which may result in withholding of Superfund monies.

6. If a state continues to violate the reasonableness criteria, and such actions jeopardize an importing state's ability to assure capacity, the importing state eventually may take appropriate action to limit the offending quantity of waste from the exporting state. These actions would not be found to be "inconsistent" under RCRA if prior approval of such actions were obtained from EPA. EPA would allow such actions only under the most narrow of circumstances.

This above process only addresses issues relating to interstate transport and disposal of waste. Compliance with this section alone does not assure adequate capacity or complete a CAP submission. Other criteria also must be fulfilled (as listed in Chapter I) to fulfill the requirements of a CAP.

Background

Section 104(k) of SARA requires states to assure the availability of adequate waste treatment or disposal facilities which "are within the state or outside the state in accordance with an interstate agreement or regional agreement or authority". EPA interprets this provision as providing the Agency with discretion in defining an interstate agreement that would meet the requirements of the law. Such discretion is needed to construct an agreement that takes into account the following:

- States, for the most part, do not control the amount of commercial hazardous waste management capacity available. The amount and location of waste management capacity chiefly is determined by private market decisions, which include considerations of market volumes available to the facility. States, however, can influence these decisions to expand or build new capacity by supporting policies that may either hinder or facilitate the development of management capacity in that state.
- Some states are net exporters of hazardous waste while others are net importers. But virtually all states both receive and ship some hazardous waste. For the commercial hazardous waste management industry to operate most efficiently, unreasonable barriers to the interstate flow of waste cannot be permitted. (By "state", we mean chiefly the waste generation and management industry contained in the state. Governments create waste only if the waste is generated by a government facility or if it arises from government-funded cleanups.)
- Some states that receive substantial net imports of hazardous waste believe such imports may arise partly from practices in other states that hinder the creation of their own waste management capacity. These importing states believe greater pressure should be placed on the appropriate exporting states to create the needed capacity.
- Many net exporting states do not export in quantities sufficient to support

a commercial management facility. These states must rely on out-of-state capacity or be forced to construct uneconomical facilities. The requirement that such states build new management capacity to support their own waste to assure capacity would not be appropriate.

Problems of Requiring Each State To Execute a Formal Agreement With Another State

In developing an approach to assuring out-of-state capacity, EPA needed to reconcile the above practical concerns against the ostensible mandate of SARA Section 104(k)(9), which requires states relying on out-of-state capacity to do so pursuant to an interstate agreement or regional authority. While most states appear to be willing to accept the status quo of interstate waste management, few—if any—appear willing to sign unconditional agreements guaranteeing that they will hold their borders open to imports of hazardous waste. The reason for this is that such agreements would hold little promise that was volumes to the importing state would, in fact, be reduced over time. Instead, by not signing such an agreement, the importing state forces the affected exporting states to reduce their exports or face potential disapproval of its CAP and, thus, loss of Superfund monies. The result might be greater amounts of Superfund monies available to the importing states that can assure capacity.

Moreover, the failure of several key states to execute a binding agreement with the states that import waste to them eventually could undermine the effectuation of the provision. Most states, even net importers, export significant quantities of waste to other states. If only a few importing states refuse to sign such agreements, it could create a series of reactions that would be difficult to sort out. (For example, in 1986, Illinois received 68,587,000 gallons of waste from 42 states and sent 21,590,000 gallons of waste to 28 states).

Finally, coupled with the above considerations is the Agency's belief that barriers to interstate waste shipments also can undermine the intent of SARA 104(k)(9) by forcing states to manage all waste created within its borders, even when it is uneconomical to do so. Such a result would obviate the efficiencies of a national market for waste management. Yet, by requiring states to execute explicit "assurances" with each other, many states with small quantities of exports could be forced to create unnecessary management capacity if they cannot obtain agreements with importing states. The Agency did not wish to sanction a process that might encourage such a response.

The Benefits of Requiring States To "Sign On" to a Common Process That Assures Capacity

It was the judgement of the Agency that it was essential to bring all states fully into the program in a progressive way. The option chosen is to require states to enter into a process that results in equitable consideration of interstate issues. The agreement fashioned is one that places all states under a common system; the Agency believes the common principles that bind all states under the agreement would motivate all to sign. This is, in part, because the process associated with the agreement provides a fair mechanism for raising, discussing, analyzing, resolving, and adjudicating interstate disputes. However, to ensure that all states do sign, the Agency requires that the agreement be executed by all states exporting waste at any time over the 20-year projection horizon of the CAP. EPA considers this a necessary step toward submitting an approvable CAP.

While the agreement set forth in this Guidance is the minimum required agreement, it should be emphasized that more concrete bilateral or multi-state agreements are encouraged and are not precluded under this process. In fact, it is hoped that the process will facilitate states to engage in joint planning efforts which may eventually lead to regional agreements.

The process outlined in this appendix constitutes an attempt to reconcile all of the above-mentioned practical concerns. The process is intended to result in agreements regarding interstate movement of waste that are nonbinding between states, but satisfy the intent of the Section 104(k)(9). The consequence of failing to enter into the agreement or failing to abide by the process is that a state may lose funding under the Superfund cooperative agreements. No state can enforce the agreements other than by requesting that EPA take action. EPA's role will be to perform an initial analysis of the CAPs, refine the reasonableness criteria that will be used to assess the actions of significant exporting states, convene a forum for airing interstate issues, help set up informal mechanisms for resolving disputes, and, finally, act on petitions submitted by affected states where disputes cannot be resolved informally.

While EPA plans to facilitate the resolution of interstate issues, it will not micro-manage the disposition of waste or prescribe waste management practices in individual states. Instead, EPA's role will be limited to determining whether a state is acting in accordance with the reasonableness criteria and, if not, whether the CAP should be disapproved. If the CAP is not approved, EPA can withhold Superfund monies as appropriate. EPA also plans only to facilitate resolution of significant disputes, when large quantities of waste are being exported and when an exporting state is not meeting the milestones in its CAP or is otherwise taking action that encourages exports at the expense of creating additional capacity.

The only actions affecting waste movement and disposition that EPA guidance would recognize as valid (pursuant to the process) are narrowly targeted actions to limit imports of hazardous waste when the importing state is in serious jeopardy of not adequately assuring capacity. Such actions may be considered a lawful exercise of police power authority as reasonably related both to avoidance of a specific harm (the potential cutoff of money necessary to clean up toxic sites) and compliance with a federal statute. In addition, the fact that such limited, narrowly targeted actions would be taken under the authority of a federal statute, as implemented by a federal agency, lends additional legitimacy to the actions. Such actions, as outlined in this appendix, would be permitted only under the most extreme of circumstances and only after resolution mechanisms have been implemented and failed.

Fulfilling the Intent of the Law

The agency believes the intent, if not the literal mandate, of section 104(k)(9) would be satisfied by the process chosen. By executing the agreement of Chapter I, each state would acknowledge the status quo of interstate waste shipments and would participate in a process to address disputes over access to capacity. Thus, the agreement would provide the assurances that capacity was available now and would be available in the future. The process is one that is effectuated by a federal agency pursuant to its authority to implement SARA. Thus, the agreements and the process are conceived as the implementing mechanism of EPA and do not constitute binding agreements that rise to the level of an interstate compact.

Finally, this process may provide a more effective means of resolving interstate issues than arise under RCRA and the requirement in RCRA that state programs be consistent. EPA's recent experience with this issue shows the difficulty of entering into adjudication without clearly defined criteria and

without an attempt to first discuss the real issues. The process set forth therein attempts to fill these gaps in the current RCRA regulatory scheme. The RCRA requires a regulatory decision without a process that allows full exposition of the facts relating to all of the state's activities. By contrast, the process set forth in this guidance anticipates a regulatory decision only as a last resort. Prior to any decision, there will have been a review and discussion of the entire state program, and development of specific evidence that a state is not issuing permits for new capacity despite existing markets for such capacity, and that the state's action is specifically burdening another state.

The Process

The following sections illustrate implementation of the process over a four-year time frame. Most of the key activities will begin immediately upon submission of the initial CAPs and will be in-place at the end of the first year. Many of the resolution efforts, however, will be ongoing.

Initial Assurance Plan—1989

The initial assurance submission will concentrate on each state supplying the best possible information on its current and projected waste generation and how that waste will be served by the current and projected management capacity of the state. In estimating their waste flows, states will be allowed to hold imports at current levels and continue to export waste according to current patterns if these assumptions are reasonable. States will be required to document expected exports and their disposition, but will not be expected to obtain assurances from each state.

All Governors (or their designates) will provide with their initial assurance submissions a signed agreement stating the following:

1. The government of the state is aware of the status quo of interstate waste shipments;

2. In accordance with other state agreements, the government of the state agrees to participate in the planning, analysis, and dispute resolution process designed to address interstate transport and disposal of hazardous waste as outlined in the waste capacity assurance guidelines; and

3. The government of the state intends to carry out the activities described in the assurance plan, which will include programs and/or milestones relevant to waste minimization and management of hazardous waste.

This signed agreement from the Governors, agreeing to participate in the process and acknowledging the status quo of interstate waste movements, will serve as the interstate agreement required under section 104(k)(9). This process referred to in the agreement (as described herein) would not make any affirmative allowances for the erection of barriers to interstate movement of waste until at least four years after the first CAP submittal, and then only if specific conditions or criteria are satisfied. The initial agreement contained in this first assurance submittal will remain in effect and will be required as a condition of EPA acceptance of a state's capacity assurance plan (CAP) with regard to interstate capacity.

Second Year—1990

EPA will prepare and publish an analysis of data submitted with the initial CAPs from each state. The analysis will highlight interstate waste flows. EPA will then publish for notice and comment a refinement of the reasonableness criteria set forth in this Appendix. The refined reasonableness criteria will include guidelines published by the agency indicating waste stream volumes sufficient to support development and operation of a new commercial management facility under acceptable practices. These guidelines will be used to highlight so-called "high volume" net exports that could subject a state to further review under this process. By themselves, however, the guidelines would not be used to determine violations of the reasonableness criteria.

A forum (or forums) will be convened under the auspices of EPA to discuss EPA's analysis and any interstate issues which arise out of the comparison of waste flows against the reasonableness criteria. This forum will be used to examine further the application of all of the reasonableness criteria.

It is anticipated that his forum will identify certain state waste streams and corresponding waste management practices which should be subject to further examination. Among other outcomes, regional planning efforts will be encouraged. One important aspect of the reasonableness criteria is that a state's waste exports and waste management practices will not be deemed unreasonable if they are subject to regional planning efforts or interstate or regional agreements. It is further anticipated that in cases for which potential violations have been identified, the affected states will conduct further examinations and will attempt to discuss these problems directly with the exporting states in question. EPA also may conduct further examination of the most potentially serious problems.

States will not be authorized to rescind the initial agreements (in the sense that EPA would not use the rescission at this time as a basis for a finding that state CAPs are unacceptable). Instead, as a result of the initial forum, EPA may, at the request of affected states, require certain states to take appropriate corrective actions (where there are clear violations of the reasonableness criteria) or provide reports of progress in meeting the milestones in order to facilitate analysis of progress over the coming year.

Third Year—1991

In the third year, the forum will be convened for a second time to consider actions over the past year to resolve interstate issues. This meeting will occur after the 1989 biennial report cycle has been completed. Progress in meeting milestones related to siting and waste minimization and otherwise reducing exported waste volumes will be examined for those states identified as violating the reasonableness criteria. Informal alternative dispute resolution mechanisms will be implemented under the auspices of EPA to develop discrete solutions between affected states.

If the interstate issues cannot be resolved by agreements worked out between the affected states within a specified period of time, EPA, on its own, or pursuant to a petition submitted by an affected state, will determine whether an "offending" state is failing to comply with the "reasonableness" criteria. EPA's determination will take into account the "offending" state's adherence to milestones set forth in the initial capacity assurance plan. If EPA determines that the "reasonableness" criteria are not being met, it will issue such a determination and indicate that if the "offending" state fails to take specified actions within a specified period of time, EPA will deem the state's capacity assurance plan to be inadequate. If the state fails to come into compliance, EPA will deem the capacity assurance plan inadequate. This finding will result in withholding of Superfund money in the year following its failure to achieve compliance.

EPA's determination that a state's capacity assurance plan is not adequate will be taken after notice published in the **Federal Register** and an opportunity for the affected state to submit comments. The final determination will be published in the **Federal Register** and will constitute final agency action, permitting the affected state to seek

judicial review in a federal district court.

Fourth Year and Beyond

If, despite EPA's final action to disapprove an exporting state's capacity assurance plan, the state continues to export significant quantities of waste to an "aggrieved" state, the aggrieved state may find it necessary to control imported waste from the exporting state. This situation will arise if the quantity of wastes exported into the "aggrieved" state significantly and adversely affects the ability of the "aggrieved" state to assure capacity for the waste generated within its borders. If this can be demonstrated, the "aggrieved" state may submit a revised capacity assurance plan which contains a restriction on the amount of waste imported from the exporting state, implemented through legislation or regulations. Such restrictions will only be allowed on the amount of waste specifically found to threaten the "aggrieved" state's capacity; unless, otherwise demonstrated, this amount will be defined as the excess of that received by the "aggrieved" state in 1987 (as described in the 1989 CAP of that state).

EPA, pursuant to this guidance and after notice and comment, will approve the capacity assurance plan with the restriction on imported waste if the Agency agrees with the aggrieved state's determination that—without the proposed restriction on the exporting state's waste—the importing state's ability to assure capacity would be seriously jeopardized. EPA would not find such action to be inconsistent with RCRA, regardless of what consistency criteria may be developed by EPA.

The imprimatur for the affected state to restrict imports from a particular exporting state comes under section 104(k)(9), as implemented by the guidance and also as necessary to assure safe and effective management capacity for the state. It is provided only under the most narrow of circumstances, and only as a last resort. The state taking action must demonstrate to EPA that the action is necessary for it to demonstrate adequate capacity to dispose of in-state generated wastes.

"Reasonableness" Criteria

The reasonableness criteria are intended to define the circumstances under which state action will be found to be inadequate to satisfy EPA's capacity assurance guidance with respect to out-of-state capacity. The criteria are intended to help identify instances in which a state might be found to place undue reliance on out-of-state waste management capacity as a substitute for creating necessary in-state capacity. Such criteria are not intended to penalize state's that have insufficient waste volumes to support a commercial facility, that have agreements or planning efforts with other states to support such waste management patterns, or that are net exporters of waste because of in-state industry shipments to captive facilities in other states.

Within the first year of the initial CAP submission, a review panel of state, federal, industry, and other interested parties will refine the definitions and terms of the so-called "reasonableness" criteria. The reasonableness criteria will include, but not be limited to, the following principles:

1. It is unreasonable for a state that needs to create capacity (as defined below) to fail to create that capacity for whatever reason.

2. A state will be deemed to need to create capacity under the following conditions:

a. It is exporting significant quantities of waste (by waste stream) in excess of that being imported to and managed by the state for treatment or disposal, or it is otherwise exporting quantities that adversely affect another state's CAP;

b. It is economically feasible to create and maintain a commercial or public facility (including optimum use of mobile incineration technology) to dispose or treat the waste in question; and,

c. it is unable to demonstrate that:

i. It has entered into any multi-state or regional planning efforts that allow it to maintain its level of exports;

ii. Its failure to reduce its waste exports is caused by special environmental, health, or safety conditions significantly more serious than those existing in other states; and

iii. It has procedures in place that are likely to create capacity within a specified period of time.

3. "Creating capacity" means:

a. Reduction of waste generated in-state through waste minimization programs;

b. Use of out-of-state facilities pursuant to interstate or regional agreements or planning efforts; or

c. Construction of new or expanded waste treatment or disposal facilities.

4. For those states that export (in net terms) significant quantities of waste, it shall be considered unreasonable if the State has incentives in place to encourage in-State generators to export waste.

ALTERNATIVE RECOMMENDATIONS ON DRAFT STATE HAZARDOUS WASTE CAPACITY ASSURANCE GUIDANCE

Chapter I—Introduction and Overview of the Capacity Assurance Process

This document provides guidance to State officials on how to prepare a State Capacity Assurance Plan (CAP). The CAP provides the documentation necessary to provide the assurances required by Section 104(c)(9) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended (Pub. L. 96–510). This section requires each State to assure the Administrator that adequate capacity will exist to manage the hazardous waste created in the State over the next twenty years (see box below). A State's failure to submit an approved CAP by the October 1989 deadline will prohibit the State from receiving Superfund money for remedial actions until such time an assurance is approved by EPA. The availability of funds for emergency removal actions is not affected by this requirement.

"Siting.—Effective 3 years after enactment of the Superfund Amendments and the Reauthorization Act of 1986, the President shall not provide any remedial actions pursuant to this section unless the State in which the release occurs first enters into a contract or cooperative agreement with the President providing assurances deemed adequate by the President that the State will assure the availability of hazardous waste treatment or disposal facilities which—

(A) Have adequate capacity for the destruction, treatment, or secure disposition of all hazardous wastes that are reasonably expected to be generated with the State during the 20-year period following the date of such contract or cooperative agreement and to be disposed of, treated, or destroyed,

(B) Are within the State or outside the State in accordance with an interstate agreement or regional agreement or authority,

(C) Are acceptable to the President, and

(D) Are in compliance with the requirements of subtitle C of the Solid Waste Disposal Act."

—Section 104(k) of the Superfund Amendments and Reauthorization Act of 1986 amending Section 104(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly known as the "Superfund"). 40 U.S.C. 9604(c)(9).

Legislative Background on CERCLA Section 104(c)(9)

The Congress added these requirements to CERCLA through the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of this provision was straightforward: Superfund money should not be spent in States that are taking insufficient steps to avoid the creation of future Superfund sites. The Congress recognized that a safe and rational hazardous waste management program for the nation depended in part of the creation of new facilities employing the most advanced technologies. While many States enacted or planned to enact siting legislation, Congress concluded that few, if any, were developing policies and siting programs that would assure continued facility capacity in the long term.

Congress stressed that a successful State siting program should recognize three key principles. First, the program should require a complete technical analysis of all proposed sites prior to their selection. Second, site selection must be accompanied by full public participation. Third, the process of site selection should find a way to transcend blanket local vetoes. The Congress further stressed, however, that merely having such programs in place would not satisfy the requirements of this section. Each State must provide assurances that their legislative program can work and will be used. The siting process may differ between States, but each program should make the best use of existing facilities in the short term and assure continued facility capacity in the long term.

Finally, Congress did not envision that every State would need to develop redundant or unneeded capacity. A site in every State is not required. In some cases, multi-State efforts may be appropriate, requiring some assurance that access exists to out-of-State facilities. Such access is to be assured through "an interstate agreement or regional agreement or authority."

In passing this statute, Congress did not explicitly address what should constitute a State assurance to EPA. Much was left to interpretation. Moreover, the nature of the data available, the interstate market, and methods to predict future waste generation demand a flexible approach in interpreting and implementing this requirement.

In EPA's view, the CAP should serve a twofold purpose. First, it should effectively demonstrate to the Agency that each State is taking measures to ensure that the hazadous waste created within its borders is and will be effectively managed. Second, the CAP should serve as a document to educate and inform the public on the State's strategy for managing the hazardous waste generated by its industry and other sources.

EPA and State Responsibilities in Implementing the CERCLA 104(C)(9) Requirements

The Agency is responsible for developing a procedure for implementing the requirements of CERCLA Section 104(c)(9). The Administrator plans to carry out this process through three major efforts: (1) Publish guidance explaining how to prepare a State Waste Capacity Assurance Plan (CAP) for submission to EPA; (2) provide technical assistance and limited financial resources to the States; and (3) review and approve the State submissions. States, for their part, are responsible for full and accurate submissions. In evaluating submissions, EPA intends to return to the States any which include volume estimates which are inconsistent with other States with whom they have import/export relationships. In this process, EPA will certainly apply a rule of reason: since many States will have reciprocal relationships with a number of other States, EPA generally, will confine its examination for consistent estimates to the top five volume import and export States for each submission.

Because of the many complex issues involved, EPA sought the advice of State officials, industry, private citizens, and public interest groups as part of developing this guidance package. The recommendations contained in this document reflect the views of these affected parties and specifically address the following problem areas:

- Data used throughout the States varies in uniformity. To help States convert their data to a uniform and consistent format for reporting purposes, EPA will provide technical assistance for States that use the New Biennial Report System, the Old Biennial Report System, or equivalent data from State reports or manifest data.
- Waste projections techniques are uncertain and under development. To accommodate the different approaches available to project waste generation, the guidance permits States to develop their own procedures as long as they meet general criteria.
- Waste minimization is a valuable waste management tool but its results are difficult to predict. To encourage States to develop waste minimization programs, the assurance process grants maximum flexibility to States in calculating the effects of such programs on the demand for future management capacity.
- The current waste management market is multi-State, and privately-run for the most part. To allow States to effectively assure the availability of capacity in other States without executing complicated interstate agreements, the guidance requires States to resolve interstate waste management issues.

Evaluation Criteria To Be Used by EPA

To comply with CERCLA Section 104(c)(9), each State must complete the reporting requirements outlined in this guidance document. The CAP submitted by the State will not be approved unless it meets the following criteria:

1. The State must submit complete and accurate information showing current generation, waste management capacity, imports, and exports.

(a) Full and accurate submissions shall constitute those in which a State demonstrates its ability to coordinate with import and export partners in developing consistent estimates of waste volumes; as noted above, EPA will return to the States for review submissions containing inconsistencies, particularly those involving large waste volumes.

2. The State must show that its projection of waste generation and demand capacity:

(a) Is based on existing or official projections of State economic activity or are otherwise justified by the State;

(b) Accounts for major waste producing industries and takes into account the range of possible changes in the economic behavior of these industries;

(c) Accounts for one-time only wastes (e.g., CERCLA or RCRA remedial corrective actions); and

(d) Incorporates effects of waste minimization as outlined in the State's plan.

3. For States that rely on waste minimization to reduce the demand for capacity, the State must demonstrate that:

(a) The estimated reductions in wastes are based on a sound technical analysis, such as surveys of specific industries and engineering analysis of potential reductions;

(b) The resources committed to implementing the waste minimization strategy are consistent with the plan set forth by the State; and,

(c) The milestones for projected accomplishments in waste minimization

are reasonable and there is a plan for action if the milestones are not met.

4. States must execute the interstate agreement set forth in Chapter II if they plan to use management capacity in other States at any time over the 20-year "assurance" timeframe.

5. For States showing capacity shortfalls in its projections, the State must meet the following requirements:

(a) It must submit a plan and milestones for creating additional capacity inside the State or otherwise show how capacity needs will be addressed through interstate or regional planning efforts:

(b) If additional capacity is to be created inside the State, the CAP must show that State and local laws, regulations, practices, and policies will not hinder the development of additional capacity, when needed, and are consistent with the proposed plan submitted under (a) above. Laws, regulations, policies, and practices that may be found to hinder development of additional capacity include, but are not limited to the following:

(i) Local preemption powers not based on environment, health, or safety concerns with no ability for the State to appeal or rectify local decisions;

(ii) Absence of a siting procedure with clearly defined steps, including opportunity for public review and comment, and clear time periods between permit review, comment, and approval/denial;

(iii) Discriminatory rules such as limits on facility size, types of waste allowed based on origin of waste, and prohibition of waste facilities not based on environmental, health, or safety considerations; and

(iv) A demonstrated history of failed efforts to create additional capacity in the presence of sufficient demand for that capacity.

(c) For States that plan to rely upon capacity outside the State to address the projected shortfall, the CAP must show that such reliance does not conflict with the plans of the State receiving the waste.

EPA expects the States to prepare and submit an assurance to the Administrator no later than October 17, 1989. EPA plans to request revised assurances every two years, in concert with the biennial report already required of TSD facilities. Thus, the first reassurance will be required in October of 1991. Each time a State enters into a cooperative agreement with EPA to obligate Superfund monies, the State must certify that their current assurance represents current policy to the best of their understanding. EPA will establish a standard certification paragraph on compliance with CERCLA section 104(c)(9), in compliance with RCRA Subtitle C, which will appear on all CERCLA cooperative agreements for remedial action funding.

Interstate Dialogue and Coordination

EPA recognizes that many States presently depend to some extent on hazardous waste treatment and/or disposal capacity in other States. In order to meet the CERCLA section 104(c)(9) requirements for an acceptable capacity assurance, waste exported by one State for treatment and/or final disposition in another State must be acknowledged and documented by the "importing" State in its own capacity assurance plan (CAP). Therefore, States which either export or import significant amounts of waste to or from another State (or States), are advised to begin dialogue and information exchange relative to these issues well in advance of the October 19, 1989 deadline for submission of their CAPs to EPA. Such exchanges should include information on both present and projected imports and/or exports between States reasonably anticipated through the 20-year period requirement under CERCLA section 104(c)(9). Consideration should be given to the compatibility of each State's projection methodology, as well as any projected waste minimization and/or source reduction. Agreement and acceptance of the data and projections may require substantial negotiations among importing exporting States. It should be noted that after the October 17, 1989 statutory deadline failure of an exporting State to obtain such an agreement will result in the loss of remedial action funding for the exporting State unless the State can successfully conclude an equivalent interstate agreement with another State with demonstrated capacity sufficient to manage the exporters needs.

Reasonable Levels of Exports

In order to promote interstate dialogue, EPA suggests that States use the following criteria as a starting point for determining what constitutes a "reasonable" level of exports:

1. It is unreasonable for a State that needs to create capacity (as defined below) to fail to create that capacity for whatever reason.

2. A State will be deemed as needing to create capacity under the following conditions:

(a) It is exporting significant quantities of waste (by waste stream) in excess of that being imported to or managed by the State for treatment or disposal or it is otherwise exporting quantities which adversely affect another State's CAP; and

(b) It is economically feasible to create and maintain a commercial or public facility (including optimum use of mobile incineration technology) to dispose of or treat the waste in question, and;

(c) The State is unable to demonstrate that:

(i) It has entered into any multi-State or regional planning effort which allow it to maintain its level of exports; or,

(ii) Its failure to reduce its waste exports is caused by special environmental, health, or safety considerations significantly more serious than those existing in other States; or,

(iii) It has procedures in place that are likely to create capacity within a specified period of time.

3. "Creating capacity" means:

(a) Reduction of waste generated in-State through waste minimization programs;

(b) Use of out-of-State facilities pursuant to interstate or regional agreements or planning efforts; or

(c) Construction of new or expanded waste treatment or disposal facilities.

4. For those States that export (in net terms) significant quantities of waste, it shall be considered unreasonable if the State has incentives in place to encourage in-State generators to export waste.

EPA Administrative Assistance

EPA, through the Regional offices, will provide administrative assistance to assist States in these dialogues to facilitate timely assurances. Such assistance will include convening of interstate and regional workgroups, regional import/export data access and manipulation and facilitation services. This support is already available in several Regions (specifically IV and X) and should be funded in other Regions by the end of this fiscal year. In addition, assistance is expected to be available to western States through an EPA grant to the Western Governors' Association. Several State pilot projects are also in progress, the results of which will be made available to all States to aid in completing their assurances.

Chapter II—Basic Instructions for Completing the State Capacity Assurance Plan

This chapter provides States with the basic instructions needed to complete their Capacity Assurance Plan (CAP) in accordance with this guidance document. Each chapter in the guidance provides specific instructions for

reporting information to EPA. This chapter outlines the format of the CAP, directions for completing the interstate agreement, technical assistance provided by EPA to complete portions of the CAP, and instructions for transmitting the State's final CAP to EPA.

Capacity Assurance Plan Format

The State should submit its CAP to EPA as a single document consisting of five Parts, based on the information required in the guidance document:

- Part 1 should contain the results of Chapter III of the guidance document, which requests information on current generation, management capacity, imports and exports. This chapter asks each State to demonstrate an understanding of its current hazardous waste generation, treatment and disposal system, and provides a format for all States to manipulate their data internally and report key information to EPA.
- Part 2 should incorporate the results of Chapter IV of the Guidance Document concerning State waste minimization plans. This Part will provide information on each State's use of waste minimization in the capacity assurance process. States that plan to use waste minimization to help them assure the availability of adequate management capacity must supply more detailed documentation on their on-going and planned efforts.
- Part 3 should incorporate the results of Chapter V of the Guidance Document, which requires States to project hazardous waste generation and the demand for management capacity. This chapter also requires States to estimate the amount of capacity needed in the State over the next 20 years.
- Part 4 should incorporate the results of Chapter VI of the Guidance Document, which covers State laws and procedures for creating management capacity within the State. All States showing a shortfall in management capacity in Part 3 must describe their plans for addressing this shortfall in this Part.

The Interstate Agreement

Section 104(c)(9) of CERCLA requires States to assure the availability of adequate waste treatment or disposal facilities which "are within the State or outside the State in accordance with an interstate agreement or regional agreement or authority." EPA has determined that this interstate agreement must acknowledge current as well as projected hazardous waste imports and exports and their treatment and/or disposal disposition. It is expected that the governor or his/her designee will recognize the present waste handling practices in their State as outlined in their capacity assurance plan as developed in accordance with these documents. To the extent that those waste handling practices involve treatment and/or disposal in another State, the CERCLA section 104(c)(9) assurance can be made by the exporting State only if the importing State accepts the fact of that treatment and/or disposal within its capacity assurance plan.

States can fulfill the requirements of CERCLA section 104(c)(9) with regard to out-of-State capacity by executing an interstate agreement as provided on pages II–3, 4, and 5 of this chapter. Two types of interstate agreements are suggested. Once, a generic agreement, can be completed where there has been adequate dialogue between importing and exporting States and importing State's capacity assurance plan adequately describes its hazardous waste management system including treatment/disposal of the exporting States wastes. EPA encourages all States to negotiate generic agreements using criteria such as that recommended in Chapter 1 for determining reasonable levels of exports.

Certain groups of States may want to reach agreements that go beyond the language suggested by the generic agreement. These groups of States are encouraged to develop separate addenda or other separate agreements in addition to the generic interstate agreement that satisfy their regional concerns.

In some instances, an exporting State may be unable to obtain or negotiate a generic agreement. In this case the State should negotiate separate "one-on-one" agreements with States that have adequate excess capacity. A model "one-on-one" agreement is provided for this purpose.

Generic Interstate Agreement

Pursuant to the requirements of the section 104(c)(9) of the Comprehensive Environmental Response, Compensation, and Liability Act and the State Hazardous Waste Capacity Assurance Guidance issued by the U.S. Environmental Protection Agency pursuant thereto; and

In recognition of the fact that this State is both an importer and exporter of hazardous waste; and

In accordance with similar agreements on behalf of other State governments respecting interstate transport and disposal of hazardous waste:

The State of ———— hereby agrees as follows:

1. The government of this State acknowledges the waste management practices for the hazardous waste generated within this State as well as those hazardous wastes which are imported into this State as outlined in our documentation to the CERCLA 104(c)(9) assurance, and

2. The government of this State intends to carry out the activities described in the State's Capacity Assurance Plan, which will include programs and/or milestones relevant to waste minimization and the management of hazardous waste.

Nothing in this Agreement shall be construed to affect the existing obligation of the States in a manner that would subject this Agreement to the purview of Clause 3, Section 10, Article I of the United States Constitution.

Governor or Designee

Interstate Agreement Between the States of (A) and (B)

Whereas hazardous wastes are articles in interstate commerce; and

Whereas the United States Congress enacted Section 104(c)(9) of the Comprehensive Environmental Response, Compensation and Liability Act (hereinafter referred to as "CERCLA"), 42 U.S.C. section 9604(c)(9); and

Whereas section 104(c)(9) of CERCLA requires, for remedial actions to be provided after October of 1989, that States enter into contacts or cooperative agreements that provide assurances that adequate capacity exists for the destruction, treatment, or secure disposition of hazardous wastes that are generated within the State for twenty years following contracts or cooperative agreements for the revision of such actions; and

Whereas section 104(c)(9)(B) of CERCLA requires that such assurances reflect the availability of hazardous waste treatment or disposal facilities within the State or outside the State in accordance with an interstate agreement or Regional agreement or authority; and

Whereas the United States Environmental Protection Agency (hereinafter referred to as "EPA") has been delegated authority to administer section 104(c)(9) by the President of the United States; and

Whereas the States of (A) and (B) have prepared plans for submission to EPA (hereinafter referred to as "104(c)(9) State Hazardous Waste Capacity Assurance Plans"); and

Whereas hazardous wastes are transported between the States of (A) and (B).

Be It Therefore Resolved and Agreed

1. The State of (A), having evaluated the 104(c)(9) State Hazardous Waste Capacity Assurance Plan of the State of (B) finds no factual or legal obstacle to accessing and utilizing that capacity within the State of (A) described in the 104(c)(9) State Hazardous Waste Capacity Assurance Plan of the State of (B).

2. The State of (B), having evaluated the 104(c)(9) State Hazardous Waste Capacity Assurance Plan of the State of (A) finds no factual or legal obstacle to accessing and utilizing that capacity within the State of (B) described in the 104(c)(9) State Hazardous Waste Capacity Assurance Plan of the State of (A).

Signed that — day of ———, 1989

Governor or Authorized Person*
State of (A)

Governor or Authorized Person*
State of (B)

Technical Assistance Available From EPA

EPA recognizes an adequate CAP includes a thorough understanding of current generation, management capacity, waste imports, and waste exports. This is the critical information required in Chapter III (Part 1 or the CAP) and used in all subsequent calculations concerning future waste management practices. EPA realizes that developing this information may be difficult for some States because of differences in data collection and management systems. To help States complete Chapter III of the Guidance Document, and to ensure that all States assemble data into the same format for the CAP, EPA has provided three forms of technical assistance. This assistance is located in a Technical Reference Manual, which will be issued by EPA in October, 1988.

The Technical Reference Manual will cover the following major topics:

1. Optional conversion methodologies will be detailed to allow the more than 700 RCRA waste codes to be aggregated into 17 common reporting categories used in the CAP. These conversion methodologies will allow States using the New Biennial Report, the Old Biennial Report (including comparable data obtained from State reports and manifests), and the California UCD codes to convert their waste data into 17 common categories.

2. An optional default methodology will be described to allow States to assign the 17 waste categories to the 15 waste management categories used in the CAP. This default methodology will be based on current waste management practices; States will be free to choose different alternatives and must adjust the default methodology for when used to project future practices.

3. A procedure will be described for converting EPA-supplied data on waste management capacity in your State (by facility ID number) to the 14 waste management categories of the CAP. The facility-by-facility information will be supplied under separate cover and will include information on facility status (on-site, commercial, or captive) and capacity (currently used, currently available, and future plans). States will be required to review, correct, and assemble this information for reporting their capacity needs.

Finally, EPA will be developing computer-based programs to facilitate the calculations described in the Technical Reference Manual and will be made available in the fall of 1988.

Additional technical assistance can be obtained by using the EPA Hotline, which is available during the hours of 8:00 a.m. and 4:30 p.m. Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your States has assigned several individuals to answer questions. Please consult the Technical Reference Manual for more details, including a list of individuals and phone numbers.

Transmittal of Capacity Assurance Plan to EPA

By Executive Order #12580, the President has delegated approval of the CIRCLA section 104(c)(9) assurances to the Administrator of the U.S. Environmental Protection Agency. Using the evaluation criteria discussed in Chapter 1 as a basis, EPA regional and headquarters personnel will evaluate the Capacity Assurance Plans in making a recommendation for final agency decision.

It is expected that the Governor of each State will transmit its State's Capacity Assurance Plan and Interstate Agreement to the EPA Administrator. These documents should be transmitted to EPA on or before October 17, 1989. A suggested transmittal letter for States to use in transmitting their Capacity Assurance Plan is shown on Page II–8.

Five copies of CAP should be sent to:
U.S. Environmental Protection Agency
401 M Street, SW.
Washington, DC 20460
Attn: ———

Sample Letter to Transmit CERCLA section 104(c)(9) Capacity Assurance Plan

Dear Administrator:

Section 104(c)(9) of the Comprehensive Environmental Response, Comprehensive, and Liability Act (CERCLA) requires States to assure you that they have sufficient hazardous waste treatment and disposal capacity to take care of all wastes expected to be generated within their borders for the next twenty years.

On the basis of the Capacity Assurance Plan that I am providing you today, I can assure you that my administration has in place a comprehensive hazardous waste management system. The attached planning document will show you that:

- This State understands its hazardous waste system and interdependence with other States.
- This State has significant in-State waste management capability and/or processes in place to acquire same.
- This State has a viable waste minimization program.
- This State has not erected an legislative barriers that materially affect our ability to manage hazardous waste.
- This State has coordinated and cooperated with other States to find treatment and disposal capacity for our exported wastes.

Since this state relies on out-of-State treatment and disposal capacity, an interstate agreement addressing the availability of these facilities is also included.

Based on the forgoing, I hereby provide my assurance that my State is in compliance with CERCLA section 104(c)(9).

Sincerely

Governor

Chapter III—Reporting the Current Status of Generation, Management Capacity, Imports, and Exports

Purpose

This chapter asks each state to demonstrate an understanding of its current hazardous waste generation, treatment, and disposal system. It requires a strong technical knowledge of your state's hazardous waste management and tracking information systems, including data needed to meet federal reporting requirements. The key items to be reported are as follows:

- The type and quantity of federally regulated (under RCRA) hazardous waste generated within the state from

* [Authorized Person means a person authorized under the law of that State to sign this agreement on behalf of that State].

both continuous industrial processes as well as one-time events, such as "batch" cleanups and RCRA and CERCLA corrective actions.

- The type and quantity of federally regulated hazardous waste shipped out-of-state.
- The type and quantity of federally regulated hazardous waste received from other states.
- The type and quantity of in-state capacity to manage RCRA-regulated hazardous waste and other waste not regulated by the EPA that consumes the state's hazardous waste management capacity, including state-regulated waste and non-hazardous waste.

Much of the information developed in this chapter will serve as a baseline for projecting future waste generation and disposal patterns. For example, information developed on the unused capacity available at in-state facilities will be useful when assessing future capacity needs. Similarly, current patterns of waste imports and exports can be used to project future behavior.

General Instructions

This chapter provides guidance to states on their responsibilities for reporting information on current waste generation, handling, and disposition. Personnel completing this chapter should consult the separate *Technical Reference Manual* for more detailed instructions on sources of data, data manipulation, and translation of raw data into the reporting formats provided in this chapter.

The following worksheets must be completed to fulfill the minimum requirements of Part I of the CAP:

- Worksheet III–1 summarizing in-state generation of 17 types of RCRA-hazardous waste.
- Worksheet III–2 summarizing in-state waste management capacity.
- Worksheets III–3, III–4, III–5, and III–6 reporting the demands imposed by each of the 17 types of hazardous waste on each of the 15 waste management categories (as applicable) in total and for on-site, off-site captive, and commercial facilities.
- Worksheet III–7 providing detail on waste exports.
- Worksheet III–8 providing detail on waste imports.

States may develop their own report forms (computer-driven reports are satisfactory) but they must follow the general formats of the worksheets listed above. Other worksheets and interim results may be included in the CAP at the discretion of the state unless otherwise noted.

Only RCRA-regulated wastes are to be reported in the Worksheets. If a state compiles figures for state-regulated waste, they should not be reported in the Worksheets submitted as part of the state CAP. Similarly, although a state may wish to track such quantities separately, the waste generated by small quantity generators (less than 1000 kilograms of waste per month) should not be entered into the Worksheets to be submitted in a state's CAP.

The individual or individuals responsible for completing this chapter should be thoroughly familiar with both state and federal hazardous waste reporting systems. In almost all states, these individuals will be part of the state's RCRA program office. However, staff from the state's Superfund office or the equivalent EPA regional Superfund Office must be consulted to obtain information concerning site cleanups.

Technical assistance is available from EPA in several forms. A hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA regional office serving your state has assigned several individuals to answer questions; names and addresses are provided in the *Technical Reference Manual*. EPA has provided direct technical assistance through regional efforts to coordinate compliance with SARA section 104(k). If states are unaware of these on-going initiatives, they should contact the RCRA coordinators in their regional offices for additional information.

Technical Reference Manual

The *Technical Reference Manual* that accompanies this guidance is designed to help extract and manipulate raw data from Biennial Reports and similar state sources and produce reports for inclusion in a state's CAP. It provides four sets of instructions, one of which will be applicable to your state, based on whether your state computerizes the Biennial Report of the equivalent data and whether your state uses the old or new Biennial report forms (or equivalent data).

Evaluation Criteria

The Agency plans to judge this document primarily on the accuracy of the data and supporting material used to complete the worksheets. In most cases—unless otherwise noted by the state—EPA expects the waste generation data contained in the worksheets to correspond with information obtained by EPA through its major reporting system, the Biennial Report. The Agency recognizes that differences will exist, however, between the state and federal reporting systems. States showing wide disparity between the amount of waste reported for the CAP and that reported to meet other federal requirements may be asked for more details.

EPA plans to provide individualized state reports with detail on hazardous waste management capacity in that state as reported in the agency's recent *Treatment, Storage, Disposal, and Recycling Survey* (TSDR). This will allow states to report consistent and relatively accurate baseline information on waste management capacity. Recognizing that some information from the TSDR survey may be up to three years obsolete at the time of the first CAP, states are encouraged to check these data and augment or correct them before presenting them in the CAP. Any corrections should be documented with a simple narrative discussion of changes.

Reporting Waste Generation

Most states now report the generation of hazardous waste by EPA waste code. More than 700 waste streams comprise EPA's list of regulated industrial residuals. Two states—California and Washington—report waste flows using a more aggregated set of waste codes developed at the University of California, Davis (these comprise the so-called UCD codes). For purposes of capacity assurance, all waste streams are to be grouped into 17 SARA waste types, which provide sufficient information for assignment to management methods.

Tables XX, XX, and XX of the *Technical Reference Manual* provide conversion factors to aggregate the EPA and UCD waste codes into this new waste type system. These tables match waste streams in either the EPA or UCD categories to the capacity assurance waste streams on the basis of waste phase (liquid, sludge, or solid) and major constituent (organic components, metals, haolgenated compounds). Several miscellaneous categories convert directly.

States using the new 1987 Biennial Report forms should use the appropriate tables and procedures described in the *Technical Reference Manual* to transfer EPA waste codes into their 17-waste type equivalent. This method uses the data on waste stream characteristics in conjunction with the designated EPA waste code to create a relatively precise mapping procedure.

States using the old Biennial Report forms should use a different set of tables and procedures presented in the *Technical Reference Manual* to convert EPA waste codes into the 17 SARA waste types. These conversions are

generally considered less precise because less is known about waste stream characteristics. Where necessary, the procedures use a national profile of waste characteristics to facilitate the conversion.

Table XX of the *Technical Reference Manual* maps UCD waste codes into the capacity assurance waste streams based on waste phase and major constituent.

Waste Streams To Be Reported

States should report only RCRA-regulated waste in the worksheets that present waste generation. States need not report the following when describing waste generation: waste volumes that are regulated only by state law; wastes generated and handled through exempt onsite NPDES processes; exempt onsite in-process recycling (closed loop); exempt onsite treatment and discharge to municipal treatment works; direct discharge to publicly owned treatment works without treatment; and exempt onsite recycling through stills. For planning purposes, states may wish to account for these or other types of regulated waste, but they should include such wastes in separate forms from those used to report RCRA-only regulated waste.

Sources of Data To Report Waste Generation

For purposes of the 1989 assurance, all states should use the 1987 Biennial Report or the equivalent data elements collected in state reports to estimate 1987 calendar year generation of these 17 waste types. While availability will vary from state-to-state, equivalent sources of data include state surveys of generators, waste management facility inventories, state-modified biennial report forms, or waste manifest reports.

Establishing A Base Year

The EPA requests that states use 1987 as the base year to report waste generation. However, if a state has more accurate data for 1985 or 1986 and feels that these data more precisely represent waste generation in their state (because, for example, the state spent considerable resources to collect and analyze that data), they should present these figures and identify the alternate base year. States that choose an alternate base year need not estimate waste generation in 1987.

Units to Report Waste Generation

All waste quantities should be reported in tons per year. Waste expressed in volumetric terms, such as gallons, should be multiplied by the density of the waste in question (tons per gallon, for example) to yield the most accurate conversion into tons. Those states using the new Biennial Report forms will find density information for each waste stream in form GM of Package B, Section III, Question D. In the absence of exact density characteristics, states may use the information presented in the *Technical Reference Manual* (Table XX, based on the density of water) to convert from volume into tons. Table XX also provides several common mass-to-mass conversion factors.

Instructions for All Worksheets

A prototype state hazardous waste generation and handling system is depicted in Figure III–1. States should quantify the waste flows, for each of the 17 capacity assurance waste types, for each of the boxes presented in Figure III–1. Waste quantities should be reported in the worksheets noted below the boxes on the figure. On-site handling, for example, should be reported in Worksheet III–4; all exports should be summarized in Worksheet III–7. Each worksheet is introduced in a general sense in this chapter. The *Technical Reference Manual* describes procedures to complete each worksheet from raw data.

The *Technical Reference Manual* is divided into four sections, based on whether a state computerizes Biennial Report data or not and whether a state is using the old or new Biennial Report forms for the 1987 reporting cycle. States with computerized processing of new Biennial Report data should consult Chapter 1 of the *Technical Reference Manual*. These states will be directed to ensure that their Biennial Report data are arranged in a standard format, consistent with the specifications of the Biennial Report Data System. Once so arranged, these states can access EPA-provided software that automatically generates all of the required worksheets in their proper formats. Because of the richness of the data collected under the new reporting system, EPA's capacity assurance software will enable states to complete many optional analyses (consult the *Technical Reference Manual* for details).

States with computerized old Biennial Report data should consult Chapter 2 of the *Technical Reference Manual*. They will be directed to follow a similar computer-driven procedure to complete the Worksheets III–1 through III–8. Because the data are generally more limited in the old Biennial Reporting system, fewer optional analyses will be available.

States with manual processing of new Biennial Report data should consult Chapter 3 of the *Technical Reference Manual*. Simplified procedures will be presented to work directly from the Biennial Report forms themselves. These states face perhaps the most time consuming task in completing the current generation and handling worksheets.

States that process old Biennial Report data manually should consult Chapter 4 of the *Technical Reference Manual*. A similar set of simplified procedures will help states make the linkage between raw data and the completed worksheets.

States for which Biennial Report data collection and processing is handled by the appropriate EPA regional office should contact the regional EPA Biennial Report coordinator to determine the applicable set of instructions to follow.

For each of the four sets of the instructions, the *Technical Reference Manual* describes methods to ensure that all states (except as noted below) are able to complete the following types of data manipulations:

- Translating Biennial Report waste codes into 17 waste types;
- Translating UCD waste codes into 17 waste types;
- Translating TSDR Survey and Biennial Report waste management codes to 15 management categories;
- Matching SARA waste types to SARA management categories based either on a national profile or new Biennial Report data;
- Separating one-time waste generation from recurrent generation based on new Biennial Report data;
- Presenting both old and new Biennial Report data in the formats specified in Worksheets III–1 through III–8;
- Sorting of exported waste by waste type;
- Sorting of exported waste by management category;
- Summarizing imported waste by state of origin and management category; and
- Summarizing exported waste quantities by type of waste and state receiving waste.

In addition to these manipulations, the *Technical Reference Manual* provides flow diagrams describing the logic used to abstract data from both the old and new Biennial Reports and report waste quantities as (1) generated and managed onsite, (2) generated onsite and managed offsite, or (3) imported for management in state.

Instructions for Worksheet III–1

Worksheet III–1 asks states to summarize total in-state generation of

RCRA-regulated waste. Total generation is comprised of primary generation (waste by-products of manufacturing processes) and secondary generation (waste by-products of waste treatment processes). While states need not draw this distinction in the worksheet, states accessing EPA's capacity assurance software will be able to generate a separate worksheet for each component.

Worksheet III–1 also asks states to separate total generation into recurrent and one-time waste quantities. Recurrent wastes include both primary and secondary streams attributable to on-going industrial activity. One-time wastes include those that result from isolated events such as equipment cleaning or decommissioning, site cleanup, or off-spec product disposal. Only states using the new Biennial Report forms will be able to separate recurrent from one-time waste generation. States using the old Biennial Report forms, which do not directly support such an analysis, should estimate one-time generation to the best of their ability, following instructions in the *Technical Reference Manual*. The *Technical Reference Manual* presents both computerized and manual procedures to assist in this separation.

Instructions for Worksheet III–2

Worksheet III–2 asks states to summarize the waste handling capacity currently available in their state. EPA will supply all the necessary figures to complete this worksheet for the 1989 CAP. Because the basis for EPA's data, however, are the results of the 1986 National TSDR Survey, some capacity figures may be obsolete. It is the state's responsibility to determine whether data supplied by EPA are appropriate for use in the CAP. Therefore, states should use their own capacity figures if they represent a more complete assessment of capacity than the EPA data. States should briefly explain in footnotes to the appropriate worksheets any differences between more recent capacity data and those supplied by EPA.

In subsequent years, states will be responsible for collecting all capacity data as part of their normal biennial reporting requirements.

Instructions for Worksheets III–3 Through III–6

Together, Worksheets III–3 through III–6 constitute the core data describing a state's current hazardous waste management system. In these four worksheets, states are asked to link waste generation to demand for in-state waste management capacity. Waste exports and the effect of waste imports also must be shown, and four types of management capacity must be examined: total in-state; in-state, on-site; in-state, captive; and in-state commercial. Completing these worksheets requires numerous data transactions; states should consult the *Technical Reference Manual* for detailed instructions on their completion.

For convenience, Worksheets III–3 through III–6 also present a separate capacity block to display current and planned future capacity figures. For the 1989 CAP, all capacity data will be supplied by the EPA in individual state reports. Thereafter, states will be expected to collect these data as part of the normal biennial reporting process.

The "exports" column on these worksheets summarizes waste residuals generated as a by-product of waste management processes and exported for further management at out-of-state facilities.

Instructions for Worksheets III–7 and III–8

Worksheets III–7 and III–8 ask states to provide additional detail on their waste exports and imports, respectively. Both old and new Biennial Reports support the presentation of exported waste quantities by waste type and receiving state. Similarly, both reports support the presentation of waste import quantities by waste type and state of origin. All states should consult the *Technical Reference Manual* for details on procedures to complete these worksheets.

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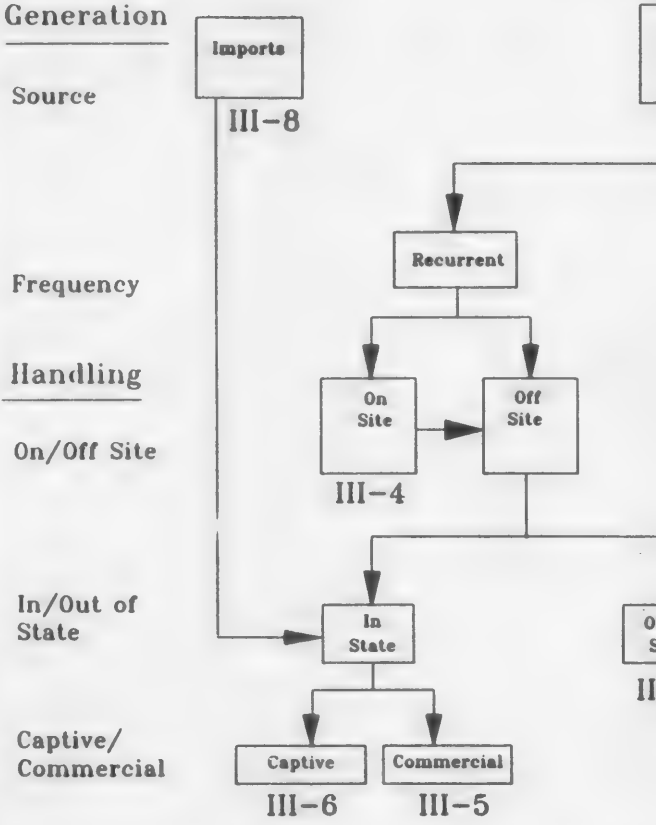
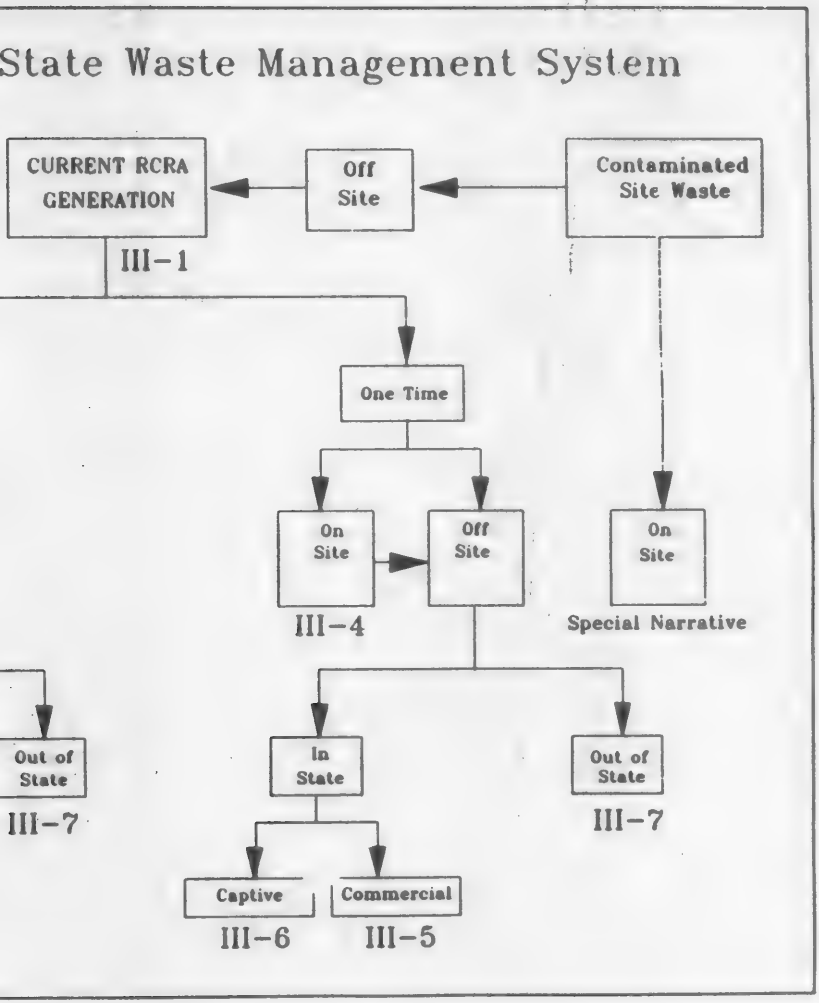
Figure III-1. Prototypical S




State Waste Management System
CURRENT RCRA GENERATION
Off Site
Contaminated Site Waste
III-1
One Time
On Site
Off Site
On Site
III-4
Special Narrative
Out of State
III-7
In State
Out of State
III-7
Captive
Commercial
III-6
III-5

WORKSHEET III-1.—SUMMARY OF IN-STATE GENERATION OF WASTE STREAMS IN 1987

[Thousands of tons/year]

Waste Types	One-Time Generation	Recurrent Generation	Total Generation
1. Contaminated Soil			
2. Halogenated Solvents			
3. Nonhalogenated Solvents			
4. Halogenated Organic Liquids			
5. Nonhalogenated Organic Liquids			
6. Organic Liquids, NEC[a]			
7. Mixed Organic/Inorganic Liquids			
8. Inorganic Liquids with Organics			

WORKSHEET III-1.—SUMMARY OF IN-STATE GENERATION OF WASTE STREAMS IN 1987—Continued

[Thousands of tons/year]

Waste Types	One-Time Generation	Recurrent Generation	Total Generation
9. Halogenated Organic Solids/Sludges			
10. Nonhalogenated Organic Solids/Sludges			
11. Organic Solids/Sludges NEC[a]			
12. Inorganic Liquids with Metals			
13. Inorganic Liquids, NEC[a]			
14. Inorganic Solids/Sludges with Metals			

WORKSHEET III-1.—SUMMARY OF IN-STATE GENERATION OF WASTE STREAMS IN 1987—Continued

[Thousands of tons/year]

Waste Types	One-Time Generation	Recurrent Generation	Total Generation
15. Inorganic Solids/Sludges, NEC[a]			
16. Mixed Inorganic/Organic Solids/Sludges			
17. Other Wastes, NEC[b]			
Total			

[a] NEC = Not Elsewhere Classified.

[b] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

WORKSHEET III-2.—SUMMARY OF IN-STATE WASTE MANAGEMENT PRACTICES (1987 CAPACITY IN THOUSANDS OF TONS)[a] Capacity

Management Category	Capacity			Remaining Capacity After 1987
	Utilized	Maximum	Available	
1. Metals Recovery				
2. Solvents Recovery				
3. Other Recovery				
4. Incineration—Liquids				
5. Incineration—Solids/Sludges				
6. Energy Recovery				
7. Aqueous Inorganic Treatment				
8. Aqueous Organic Treatment				
9. Sludge Treatment				
10. Other Treatment				
11. Stabilization				
12. Land Treatment				
13. Landfill				
14. Deep-Well Injection				
15. Other Disposal				

[a] All data provided by EPA for the 1989 CAP.

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Worl

Summary of All In-State

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
Imports				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/

rksheet III–3:

te Waste Management Activities in 1987

MANAGEMENT CATEGORIES															
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Wo

In-State, On-Site Wast

WASTE TYPES	Generation	Metals recovery	Solvents recovery	
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioacti

orksheet III–4:

ste Management Activities in 1987

MANAGEMENT CATEGORIES																
	Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Wor

In-State, Captive Waste

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
Imports				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive

orksheet III–5:

te Management Activities in 1987

MANAGEMENT CATEGORIES																
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

Worl

In-State, Commercial Wa

WASTE TYPES	Generation	Metals recovery	Solvents recovery	Other recovery
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
TOTAL				
Imports				
GRAND TOTAL				

CAPACITY DATA- TSDR SURVEY

Utilization 1985				
Available 1986				
Future available 1989				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioactive/

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rksheet III–6:

Waste Management Activities in 1987

MANAGEMENT CATEGORIES															
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	Exports	TOTAL

WORKSHEET III–7.—SUMMARY OF EXPORTED WASTE QUANTITIES IN 1987 BY WASTE TYPE AND RECEIVING STATE

[In thousands of tons]

Waste Types	Receiving State (List Each Relevant State)
1. Contaminated Soil	
2. Halogenated Solvents	
3. Nonhalogenated Solvents	
4. Halogenated Organic Liquids	
5. Nonhalogenated Organic Liquids	
6. Organic Liquids, NEC[a]	
7. Mixed Organic/ Inorganic Liquids	
8. Inorganic Liquids with Organics	
9. Halogenated Organic Solids/Sludges	
10. Nonhalogenated Organic Solids/ Sludges	
11. Organic Solids/ Sludges NEC[a]	
12. Inorganic Liquids and Metals	
13. Inorganic Liquids, NEC[a]	
14. Inorganic Solids/ Sludges with Metals	
15. Inorganic Solids/ Sludges, NEC[a]	
16. Mixed Inorganic/ Ocean Solids/Sludges	
17. Other Wastes, NEC[b]	

[a]NEC=Not Elsewhere Classified.
[b]Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCDs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

WORKSHEET III–8.—SUMMARY OF IMPORTED WASTE QUANTITIES IN 1987 BY MANAGEMENT CATEGORY AND STATE OF ORIGIN

[In thousands of tons]

State of Origin	Tons Utilized	Waste Management Category (List all Relevant Categories)

Definitions Section

Available Capacity. The amount of waste which a treatment, storage, disposal, or recovery facility determines it can process within a single reporting year, or the amount allowed by all relevant EPA permits, whichever is less.

Captive Management Facility. Any treatment, storage, disposal, or recovery unit, process, or operation that is used exclusively to manage the waste produced by another operating unit or units under the same ownership of any facility from which it receives waste.

Commercial Management Facility. Any hazardous waste treatment, storage, disposal, or recovery unit, process, or operation that is generally available to manage the waste of other facilities and is not under the ownership of any facility from which it receives waste.

Equivalent State Data. This phrase refers to common state data, derived from official surveys or manifests, that use the RCRA waste codes to report generation and capacity information. This data is similar to that collected under the old Biennial Report.

Future Available Capacity. The amount of waste a treatment, storage, disposal, or recovery facility determines it can process within a prescibed time period.

New Biennial Report. This refers to the revised EPA reporting system, issued for the 1987 reporting cycle. States may choose whether or not to use the new Biennial Report. New information required by the 1987 Biennial Report include data on waste stream constituents, details on a state's waste minimization activities, and facility capacity information.

Old Biennial Report. This refers to the current official EPA reporting system, last used by all states in 1985. Data requested from the states included quantities of waste generated and amounts of waste treated, stored, or disposed. The same data are still required for the 1987 reporting cycle as minimum requirements.

On-site Management. Any hazardous waste not transferred from the site of its generation for treatment, storage, or disposal. By definition, such facilities are captive.

Utilized Capacity. The actual amount of waste managed by a treatment, storage, disposal, or recovery system within a single year.

Chapter IV—State Waste Minimization Plans

Purpose

The purpose of this chapter is to obtain information on each state's use of waste minimization in the capacity assurance process. (For the CAP definition of waste minimization see the Definitions Section at the end of the Chapter.) While the Agency believes a waste minimization program is a key step toward sound hazardous waste management, EPA recognizes that some states may choose to assure adequate capacity without claiming waste reduction benefits. These states must supply only brief information on their ongoing or planned waste minimization efforts. Such information will be evaluated for completeness only; EPA will not evaluate the waste minimization programs of these states.

States that plan to use waste minimization to help them assure the availability of adequate management capacity must supply documentation on their ongoing and planned efforts. These states must describe the overall strategy of their programs, how they plan to account for waste minimization in their waste generation projections, and how these programs might affect waste generation for the projection years.

General Instructions

To complete the requirements of this chapter, states should respond to the questions contained in the attached forms. States should copy and complete the appropriate forms and include them—along with additional documentation—in their CAP. Not all forms must be completed.

States not using waste minimization programs to reduce capacity demand must complete the following form:

Form I: Legislative Authority. This form requests information on the present legislative authority for a waste minimization program, its general make up, funding, staffing, and any anticipated legislative or programmatic changes.

States that anticipate using waste minimization programs to reduce capacity demand must complete Form I and the following forms:

Form II: Waste Minimization Reduction Estimates. This form requests detailed information on the state's anticipated effect of state and industrial waste minimization efforts, technical basis of these estimates, and measures of effectiveness.

Form III: Program Components Descriptions. This form requests more detailed information on the individual components that comprise the state's waste minimization program.

The information requests in Forms II and III will enable the EPA to assess the reasonableness of the state's proposed goals and activities and to monitor the progress of the state's programs.

A glossary of the terms used to describe the waste minimization program components is contained in the Definitions Section at the end of the chapter. In addition, technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has

assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Evaluation Criteria

EPA plans to evaluate each state's waste minimization plan differently. For states not choosing to incorporate any waste minimization estimates into projections of capacity need, the Agency will simply review the state's submittal for accuracy and completeness. In these cases, the Agency will make no judgment on the adequacy of the particular waste minimization program operated by the state, if any such program is operating or planned.

For states that rely on waste minimization to reduce the demand for waste treatment capacity, the Agency must conduct a more detailed evaluation. For these states, the following must be demonstrated in the CAP.

- The estimated reduction in waste are based on a sound technical evaluation of the potential effects of waste minimization in your state. This does not require a technical analysis of waste minimization potential but an examination from available information to determine how it may apply to your state.
- The resources committed to implementing the waste minimization strategy are consistent with the plan set forth by the states; and,
- The activities for projected accomplishments in waste minimization are reasonable and there is a plan to implement these activities.

Form I: Legislative Authority

All states must fill out this form. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. Does legislative authority exist to implement a waste minimization program in your state? If authority exists through general broad authority, please answer yes and site the authority if known.

— Yes — No?

1a. If yes, what are the titles of the legislation and when was it enacted?

1b. Is future legislation anticipated and when does the state plan to have it enacted?

2. Indicate which of the following waste minimization program components are specifically in use or authorized in your state:

In use	Authorized	
_____	_____	Technical Assistance
_____	_____	Economic Incentives
_____	_____	Waste Exchange
_____	_____	Research and Development
_____	_____	Regulatory Requirements
_____	_____	Education
_____	_____	All programs are authorized under a broad legislative enactment
_____	_____	Other:

3. In your state, are there any pending statutes, or regulations relating to waste minimization that are expected to be enacted within the next two years?

— Yes — No?

3a. Please briefly describe the anticipated changes and their expected impacts on waste minimization in your state.

4. What administrative agency or agencies implement your state's waste minimization program (list all applicable agencies and the waste minimization component they are responsible for).

Agency

Component

5. What is the amount of funding received from the following sources (in thousands of dollars) for your waste minimization program?

—General revenues
—Dedicated taxes (e.g. waste end, feedstock)
—Tipping fees
—Federal Grants
—Other

6. Please estimate the number of person-years of staff supported by the state working on waste minimization.

—State professionals on staff
—Consultants
—Other

7. Do you plan to show any effect on future waste management capacity demand from waste minimization activities in your state?

— Yes — No?

If *Yes* Proceed to Form II, Waste Minimization Reduction Estimates.

If *No* Stop Here

The Waste Minimization Portion of the Capacity Assurance Submittal is Completed.

Form II. Waste Minimization Reduction Estimates

Only those states that anticipate incorporating waste minimization estimates in their capacity projections must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. Please estimate, using Worksheet IV–1, the amount of waste expected to be reduced (in tons or percent reduction) by waste minimization for each of the 17 waste types of Chapter III for projection years 1989, 1995, and 2009. These estimates should illustrate how you plan to incorporate waste minimization into your waste projections of Chapter V. They should not include anticipated changes in production rates, but should show only those reductions based on waste minimization efforts.

2. Please briefly describe the basis of your technical estimates. A list of bibliographic references and a short narrative describing how they were used is sufficient. Examples of appropriate material that might be used to develop waste minimization estimates include:

- State surveys of waste generation trends.
- Waste minimization plans prepared by industry in your state (Please describe or include these plans).
- Reports from Advisory Councils on the potential effects of waste minimization for the state.
- Reports from Federal Agencies and Trade and Technical Associations estimating trends in waste minimization applicable to the industries in your state.
- Engineering studies and analysis of potential waste stream changes applicable to industries in your state.
- Programs conducted by non-state agencies such as non-profit organizations that affect the industries in your state

3. How do you intend to measure the effectiveness of your Waste Minimization Program? (In addition to the information provided in the Biennial Report, indicate which of the following do you plan to evaluate to determine the effectiveness of your waste minimization program.)

—No other measures besides that obtained from EPA's biennial report
—Number of information requests handled
—Number of industries/plants participating
—Savings to industry (cost ratios)
—Change in waste quantity generated

—Change in ratios of waste generated per unit product
—Other

4. How will you acquire this information?
—By examining waste minimization program records
—By conducting industry surveys
—New EPA Biennial Report
—By examining state regulatory files
—Other

5. Briefly describe your communication strategy with the industrial community.

6. In addition to your waste reduction estimates, are there any other activities in your state (announced programs by one or more key industries to reduce waste, pending legislation or regulations, component implementation schedule) that might be useful in evaluating your waste minimization program?

Date	Activity

If You Have Shown Waste Reduction Estimates Based on the Effects of Your Waste Minimization Program, Proceed to Form III, Program Component Descriptions.

Form III: Program Component Descriptions

Only those states that anticipate incorporating waste minimization estimates in their capacity projections and have indicated employing individual waste minimization components in Form I Question 2 must complete this form. This section requests information on the specific components of your waste minimization program. Please complete the sections that are applicable to your state program. Questions on different waste minimization components are presented separately so that they may be distributed to different program officials if necessary. States should copy and complete the form and include it—along with additional documentation—in Part 2 of their CAP. Please attach additional information if more space is needed to answer any question.

Form III includes the following:
III-a Technical Assistance
III-b Economic Incentives
III-c Waste Exchange
III-d Research and Development
III-e Regulatory Requirements
III-f Education

Respondents to each set of questions in this form should attach their name and telephone number should additional information be necessary.

Name of Respondent _____
Telephone number _____
Address _____

1. Please indicate the approximate emphasis that your state places on the following waste minimization components as a percent of your waste minimization budget.

Component	Approximate percent of budget
Technical Assistance	
Economic Incentives	
Waste Exchange	
Research and Development	
Regulatory Requirements	
Education	
Other	
Total	100%

III-a Technical Assistance

Indicate which of the following Technical Assistance components are currently in use or proposed for use in your waste minimization program.

Technical Assistance		
On-going	Proposed	
		On-site assistance
		Information clearinghouse/ Library
		Technical workshops
		Feasibility studies
		Other:

2. For Technical Assistance, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Technical Assistance program (e.g., waste streams, industry categories, or both).

2b. Why did you choose to implement this program?

2c. What problems to implementing the Technical Assistance program do you anticipate or have you experienced?

III-b Economic Incentives

1. Indicate which of the following Economic Incentives components are currently in use or proposed for use in your waste minimization program.

Economic Incentives		
On-going	Proposed	
		Awards/matching grants
		Taxes/Fees (e.g., waste-end, front-end, point-of-use)
		Low-interest loans
		Tax credits
		Other:

2. For Economic Incentives, please provide the following information for existing or proposed programs:

2a. Indicate the number of grants provided in the base year as part of this component.

2b. What is the current (or projected) annual budget for grants provided in your waste minimization program as part of Economic Incentives (in thousands of dollars)?

2c. Describe the specific target of the Economic Incentives program (e.g., waste streams, industry categories, or both).

2d. Why did you choose to implement this program?

2e. What problems to implementing the Economic Incentives program do you anticipate or have you experienced?

III-c Waste Exchange

1. Indicate, which of the following Waste Exchange components are currently in use or proposed for use in your waste minimization program.

Waste Exchange		
On-going	Proposed	
		State-promoted
		State-managed
		State-financed
		Regional or multi-state effort
		Other:

2. For Waste Exchange, please provide the following information for existing programs or proposed programs:

2a. What is the current (or projected) annual contribution to the Waste Exchange (in thousands of dollars) that you participate in?

2b. What is the name of the Waste Exchange that you participate in?

2c. Which states participate in this Waste Exchange (Please list)?

2d. Describe the specific target of the Waste Exchange program (e.g., waste streams, industry categories, or both).

2e. Why did you choose to implement this program?

2f. What problems to implementing the Waste Exchange program do you anticipate or have you experienced?

III-d Research and Development

1. Indicate, which of the following Research and Development components are currently in use or proposed for use in your waste minimization program.

Research and Development

On-going	Proposed	
_____	_____	Options development/ feasibility studies
_____	_____	Pilot scale or demonstration projects
_____	_____	Economic or policy analysis
_____	_____	Manuals for audits or technology implementation
_____	_____	Other:

2. For Research and Development, please provide the following information for existing programs or proposed programs:

2a. What is the current (or projected) annual budget for Research and Development (in thousands of dollars)?

_____

2b. Describe the specific target of the Research and Development program (e.g., waste streams, industry categories, or both).

_____

2c. Why did you choose to implement this program?

_____

2d. What problems to implementing the Research and Development program do you anticipate or have you experienced?

_____

III-e Regulatory Requirements

1. Indicate, which of the following Regulatory Requirement components are currently in use or proposed for use in your waste minimization program.

Regulatory Requirements

On-going	Proposed	
_____	_____	Reporting requirements
_____	_____	Reduction standards
_____	_____	Design or operating standards (e.g. required chemical substitutions)
_____	_____	Management standards (e.g. mandatory waste reduction audits, listing on waste exchanges)
_____	_____	Other:

2. For Regulatory Requirements, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Regulatory Requirements program (e.g., waste streams, industry categories, or both).

_____

2b. Why did you choose to implement this program?

_____

2c. What problems to implementing the Regulatory Requirements program do you anticipate or have you experienced?

_____

III-f Education

1. Indicate, which of the following education components are currently in use or proposed for use in your waste minimization program.

Education

On-going	Proposed	
_____	_____	Governor's or other award programs
_____	_____	Public education (e.g. seminars, workshops, pamphlets)
_____	_____	Outreach
_____	_____	Other:

2. For Education, please provide the following information for existing programs or proposed programs:

2a. Describe the specific target of the Education program (e.g., waste streams, industry categories, or both).

_____

2b. Why did you choose to implement this program?

_____

2c. What problems to implementing the Education program do you anticipate or have you experienced?

_____

WORKSHEET IV-1.—ESTIMATE REDUCTIONS

[In tons or percent reduction]

Waste Types	Projection years—		
	1990	1995	2009
1. Contaminated Soil			
2. Halogenated Solvents			
3. Nonhalogenated Solvents			
4. Halogenated Organic Liquids			
5. Nonhalogenated Organic Liquids			
6. Organic Liquids, NEC [a]			
7. Mixed Organic/Inorganic Liquids			
8. Inorganic Liquids with Organics			
9. Halogenated Organic Solids/Sludges			
10. Nonhalogenated Organic Solids/Sludges			
11. Organic Solids/Sludges NEC [a]			
12. Inorganic Liquids with Metals			
13. Inorganic Liquids, NEC [a]			
14. Inorganic Solids/Sludges with Metals			
15. Inorganic Solids/Sludges, NEC [a]			
16. Mixed Inorganic/Organic Solids/Sludges			
17. Other Wastes, NEC [b]			
Total			

[a] NEC = Not Elsewhere Classified

[b] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

Definitions Section

Definition of Waste Minimization

Waste Minimization. The reduction, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored, or disposed. Waste minimization includes any source reduction or recycling activity undertaken by a generator that results in: (1) the reduction of total volume or quantity of hazardous waste; (2) the reduction of toxicity of hazardous waste; or (3) both, as long as the reduction is consistent with the goal of minimizing present and future threats to human health and the environment.

Source reduction. The reduction or elimination of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction implies any action that reduces the amount of waste exiting from a process.

Recycling. The use or reuse of a waste as an effective substitute for a commercial product, or as an ingredient or feedstock in an industrial process. It also refers to the reclamation of useful constituent fractions within a waste material or removal of contaminants from a waste to allow it to be reused. As used in this report, recycling implies use, reuse, or reclamation of a waste either on site or off site after it is generated by a particular process.

Characterization of Waste Minimization Terms

Technical Assistance

On-Site Assistance. Comprehensive technical assistance to aid industry in reducing the volume or toxicity of wastes generated. May include consultation on industrial and waste management practices and waste minimization options.

Information Clearinghouse/Library. A data base (electronic or hardcopy) made available to managers involved in waste minimization. Clearinghouses provide access to documents, references, and telephone assistance.

Technical Workshops. Information dissemination programs designed to keep industry and the community up-to-date on programs, technology, waste minimization activities and appropriate regulatory information.

Feasibility Studies. Technical assistance, provided off-site, consisting of process analysis and engineering study utilizing general knowledge. May be based on information gathered from similar industries or previous on-site technical assistance. Project results are usually applicable to assist in solving select ranges of manufacturing or institutional problems.

Economic Incentives

Awards/Matching Grants. Direct payments from the state to hazardous waste generators or others engaged in waste minimization activities. May be structured to encourage various types of waste minimization activities, to assist specific types of firms, or to focus on particular waste streams.

Taxes/Fees. A means by which states create an economic incentive for waste minimization. Front-end taxes can be imposed at or near the beginning of the commercial chain of production, throughout the distribution network, and at the point of consumption of selected chemicals and substances. Waste-end taxes may be levied on the generation, transportation, storage, treatment, or disposal of wastes.

Low-Interest Loans. Financial assistance that enables firms to reduce the cost of financing investments in processes and technologies that reduce wastes. Usually directed to both small and mid-sized hazardous waste generators who may be unable to obtain commercial credit at an affordable price.

Tax Credits. A direct reduction in the tax liability of the firm, generally rewarding only capital investments.

Waste Exchanges

Waste generated by one company are provided or sold to another company that can use the waste material in their operation. Recipient companies usually use the waste untreated or subject it to a minimal amount of treatment prior to reuse.

Research and Development

Involves applied hazardous waste research, development, and demonstration projects and may include feasibility studies, pilot- and bench-scale demonstration projects, and economic and policy analyses. Usually funded by government and in some cases the private sector, these projects are typically undertaken by universities and other academic institutions.

Regulatory Requirements

Reporting Requirements. Requests by the government for generator information sufficient to determine the effectiveness of waste minimization programs. In some cases the companies involved in waste minimization are required to submit their plan as a part of a permit application to the regulating authority for adequacy.

Reduction Standards. Specific targets for reduction over time in the quantity and/or toxicity of certain waste streams.

Design or Operating Standards. Limitations or criteria applied to process design and manufacturing operations, usually specific to particular industries and/or waste streams, to minimize waste generation.

Management Standards. Directed to encourage waste minimization. Requires good management practice standards which may include mandatory audits or listing of wastes on a waste exchange.

Education

Governor's or Other Award Programs. A low-cost means to recognize and honor companies and institutions that have demonstrated outstanding achievement in hazardous waste management.

Public Education/Outreach. Promotional activities designed to keep the public informed of the need for a commitment to hazardous waste minimization. Targeted in general to citizen groups, trade associations, and professional organizations.

Chapter V—Projecting Hazardous Waste Generation, the Demand for Management Capacity, and Capacity Needs

Purpose

This chapter outlines procedures for states to use when projecting hazardous waste generation and its subsequent demand for waste management capacity. Projected total demands are then compared to projected capacities for each of the 15 waste management categories presented in Chapter III. The result is an estimate of projected capacity needs for each waste management category. The completed worksheets and narrative should represent Part 3 of the CAP.

States must project waste generated within their borders in 1989, 1995, and 2009. The 1989 projection year corresponds to the next biennial reporting year. The 1995 projection will present a near-term estimate of demands for waste management after most of the current hazardous waste regulations—the land disposal restrictions in particular—take effect. The law specifies that states assure adequate waste management capacity for 20 years, hence the year 2009 projection.

The methods contained in this chapter reflect procedures commonly used today to project waste generation. The Agency recognizes the inherent uncertainty of projections and the limitations of all procedures. For this reason, the Agency does not endorse any one system; states are free to choose the approach that best represents their particular situation. However, all projections must adhere to the following general guidelines:

- Projections must take into account economic expansion or contraction and its effect on the quantity of waste generated by the major sources within the state.
- Projections must account for the effects of waste minimization activities on future waste generation, based on clear documentation as described in Chapter IV and quantified in this chapter.
- Projections must account for non-recurrent wastes (from equipment decommissioning or replacement, materials or product disposal, materials or product spills, closure actions, remedial or corrective actions, or other non-routine sources) as well as waste generated from continuous industrial processes.
- To the extent possible, the state must address the potential effect of regulatory change on future waste generation and management options. EPA will provide a list of key regulations that the states should include in their analysis.

General Instructions

For each of the projection years, states should summarize their projections of waste quantities and effects on waste management capacity using worksheets V–1 and V–2, respectively. Worksheet V–2 is used to calculate waste management demand from in-state waste after subtracting waste exports. Worksheet V–3 is similar to Worksheet V–2, except that it requires states to estimate management capacity demand based on total in-state waste generation (including projected exports). Final potential capacity needs are determined in Worksheet V–4, which asks states to report estimated capacity needs after incorporating the effect of waste imports and exports. While the combined effect of imports and exports are used to estimate capacity needs, states also must report the balance of total in-state generated waste (including potential exports) against total in-state available capacity (excluding potential exports). This calculation, also required in Worksheet V–4, will be used by EPA to examine the

effect of waste imports and exports on each state's capacity balance.

The following sections provide general instructions on projecting waste from continuous industrial processes using common economic indicators and procedures; and projecting waste generated intermittently, such as that resulting from RCRA and CERCLA cleanups. Much of the analysis conducted for Chapter III will be used to complete this chapter, and similar expertise will be needed. In addition, states should coordinate their efforts with other state offices responsible for projecting and/or tracking state industrial activity or revenues. To the extent possible, waste generation should be based on the same economic forecast information used to project general business activity in the state or region.

Technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Evaluation criteria

The Agency recognizes that no single methodology exists that is universally acceptable for projecting hazardous waste generation. Considerable discretion is left to the states to formulate reasonable projection methods. However, the Agency plans to evaluate the waste projections portion of the state's CAP on the following points:

- The underlying economic assumptions used in the projections should reflect existing or official projections of state economic activity unless otherwise justified by the state;
- The projections must account for major waste producing industries and the range of possible changes in the economic behavior of these industries;
- The projections must account for non-recurrent waste (e.g., CERCLA or RCRA remedial or corrective actions);
- The projections must correctly incorporate the predicted effects of waste minimization as outlined in Chapter IV; and
- The projections must document assumptions regarding waste imports and exports as required in the CAP.

Many states will have the capabilities to provide detailed estimates of future waste generation amounts and their demand for management capacity. Others may not have these capabilities or may choose not to make detailed estimates either because they have limited industrial sources or do not foresee significant economic changes taking place. EPA will accept all projections as long as they show that the state has considered all relevant factors and is not in conflict with other official state policy on economic development.

EPA recognizes that projections made for year 20 will be far less certain than those made over the short term. In the absence of additional information, the EPA will accept linear extrapolation of trends developed through the 1995 projection period.

Projecting Recurrent Waste Generation From Industrial Sources

Using 1987 generation as a baseline, states should first estimate expected generation for projection years 1989, 1995, and 2009 solely on the basis of economic changes. States should then make adjustments to these estimates to account for the expected effects of waste minimization as described in Chapter IV. Finally, states should, to the best of their ability, adjust their projections to account for the effects of pending regulations (listed subsequently in this chapter) on the demand for waste management capacity.

Projecting Waste Generation Based on Economic Expansion or Contraction

Economic change is a combination of two measures: changes in economic base (reflected by the basic composition of the region's industry, including new entrants and closures) and changes in industrial output (defined as the total value of goods and services from current industrial production). The agency does not expect states to forecast changes in their state's economic base, unless such changes are likely and critical—announced plant closures or start-ups of key industries are examples of such critical changes. However, absent such information, states should assume that the set of industries responsible for generating the majority of the state's hazardous waste in the base year will exist over the projection period.

The states should account for the effects of economic forces specific to each state and, ideally, to those industries currently responsible for the majority of waste generated. This involves two steps. First, states should compile a list of those industries that are responsible for generating the majority of waste (as defined by the 17 CAP waste categories) in their state. For states using EPA's new Biennial Report forms, these data are available in Form IC, Section IV (SIC code identification) and either GM or GS (waste quantities).

Second, the waste generation characteristics of these industries should be normalized to some indicator of economic output (discussed subsequently). Projections of the same economic indicator (or growth factors) then can be used to project waste from the industrial category in question. For states in which most of the 17 waste categories are dominated by a single industry or ones having similar growth potential, these growth factors simply may be applied to each of the 17 waste categories as appropriate.

Industries of Interest. Ideally, industrial activity should be forecast for each 4-digit SIC (Standard Industrial Classification) code industry responsible for one percent or more of a state's total waste volume. There are about 450 4-digit SIC industries represented in the Office of Management and Budget's Standard Industrial Classification system. While the mix of major waste generating industries will vary from state to state, most states should find that less than 100 4-digit SIC industries will account for 95 percent to 99 percent of total state generation. In many states, particularly the smaller ones, the majority of hazardous waste quantities will be attributable to perhaps 20 industry groups.

Even though economic projections at the 4-digit SIC code level of detail may provide the most accurate basis for projecting future waste quantities attributable to economic change, states are not required to build sophisticated projections models to track changes at this level. States should choose the level of detail in their economic projections best suited to their industrial bases, level of detail in baseline waste generation data, and technical support available within the state to make projections. Some states may find, for example, that projections at the 2-digit SIC code level are most appropriate. Others may not have access to SIC code information linked to waste generation and may thus choose to project economic change using a statewide growth index such as total state product. All of these methods will be acceptable to the Agency if they are appropriately documented.

Factors for Projection. Actual records of the number of product units manufactured—tons of steel or barrels of oil, for example—are the most certain measures of industrial output because they capture, by definition, actual manufacturing activity within the plant. But using these measures to project future output in 70 to 100 industries would be unnecessarily complex. In the

past few years, states have chosen to project economic changes using the following indicators, specific to a target group of 4-digit SIC industries:

- Total employment;
- Production employment;
- Value added by manufacture;
- Value of shipments; and
- Personal income from manufacturing (wages).

States should choose the indicator that most closely approximates in-plant industrial activity, and for which adequate data is available. None of the indicators above are perfect in this respect but some are better than others. Availability of the data may be the overriding factor influencing the state's decision.

Value of shipments, for example, is routinely reported in national aggregate statistics and at the individual plant level. But this measure does not distinguish between manufacturing and inventories as the source of shipments. Waste generation would be overestimated, for example, if waste was normalized to data that represented shipments from inventories instead of production, since actual production levels (and, hence, waste) in that year would be lower than shipments would indicate. In addition, the double counting associated with cross-shipments in value of shipments data may account for overestimates of plant activity.

Total employment also is routinely reported in national statistics and by individual plants, but changes in employment can misrepresent manufacturing activity if management and production employment change at different rates. In addition, waste generation estimates based on employment will be significantly overestimated if a company headquarters, representing largely management as opposed to production labor, constitutes a significant share of total employment within a given SIC code.

Value added closely parallels manufacturing activity because this measure avoids the problem of inventories associated with value of shipments data. These data are more limited, however, at the national level and they are rarely reported by individual manufacturing establishments.

While production employment is an input measure of manufacturing and not an output measure, it remains a good overall indicator insofar as it parallels manufacturing activity and is generally available at the 4-digit SIC code level regionally. It is important to account for changes in labor productivity, however, in projections of waste generation as a function of production employment. As industries automate, the ratio of waste per production employee may change, leading to over- or underestimates of future waste production if these adjustments are overlooked. In general, as labor productivity increases (the output per production employee rises), more waste will be created per employee in future years than in the baseline year.

Personal income from manufacturing, or simply wages, is another good overall indicator of plant activity. Estimates of personal income from manufacturing are available in national aggregate form, by 4-digit SIC code, and by state.

Sources of Data. The U.S. Department of Commerce (Bureau of the Census) and the U.S. Department of Labor (Bureau of Labor Statistics) collect and publish historical data on value of shipments, value added, total employment, production employment and income from manufacturing at the 4-digit SIC code level, by state or by county. At a minimum, all states can use these data to project future trends based on trends over the past five years. Alternatively, the Bureau of Industrial Economics prepares similar projections for groups of 4-digit SIC industries for the nation as a whole in its annual publication, *U.S. Industrial Outlook*. States can adapt these national projections if they so choose or they can adjust them with state-specific data. The Bureau of the Census' publication, *County Business Patterns*, provides a source of historical data on employment and sales, by industry and by county. Projections of personal income from manufacturing by SIC code and state through the year 2000 are available through the U.S. Bureau of Labor Statistics. Similar projections at the state level may be available from state agencies responsible for employment or labor trends.

Typically, a state economic development office or office of the Governor responsible for revenue projections will prepare its own forecast of industry growth. These projections may be incorporated directly into capacity assurance projections.

Reporting Projections. States report the results of hazardous waste projections attributable to economic change in column A of Worksheet V–1. A separate Worksheet should be presented for each projection year.

Documenting Projections. States should develop narrative support for the projections of waste generation and demand for management types presented in Worksheet V–1. In particular, the narrative documenting the effects of economic change should explain how growth factors were applied to project waste.

Incorporating the Effects of Waste Minimization

States have the option to reduce demands for waste management capacity in 1989, 1995, and 2000 by promoting waste reduction and projecting its effects. Plans for implementing and accounting for such activities must be documented in Chapter IV. In that chapter, states must identify two key parameters of thier waste reduction adjustments: (1) target percent or tonnage reductions by waste type, and (2) a schedule over which these reductions are expected to take place. In this chapter, states must show how the factors developed in Chapter IV have been incorporated in their projections.

The most straightforward approach is to adjust the expected waste quantities generated in a target year by the quantity expected to be reduced through waste reduction. A simple narrative explanation of how waste reduction factors were applied should be included to support the adjustments made in column B of Worksheet V–1.

Incorporating the Effects of Regulatory Changes on Waste Generation

EPA anticipates that changes in regulations over the projection period will affect both waste quantities (the demand for waste management capacity) and the allowable alternatives for management. Both are expected to affect a state's ability to assure adequate capacity. This section identifies the extent to which states should include the effects of regulatory changes on projections of waste generation. A subsequent section addresses the effects of regulatory changes on capacity supply and on the allowable matching of waste type to management categories.

The effects of regulatory changes on the demand side should be incorporated in column C of Worksheet V–1. Regulatory effects on waste generation also should be documented separately in a narrative statement.

Because of the uncertainty in projecting these effects over a 20-year period, EPA expects the states to account for regulatory change only to the extent that the Agency has published and can make available to the state its Regulatory Impact Analysis (RIA) for each rule, as of October 1, 1988. The RIA will describe likely quantitative effects on waste generation and consequent demands for

management technologies. The following is a list of rules that EPA expects to have an impact on capacity assurance, and for which publication of an RIA is expected by October 1:

Land Disposal Restrictions, First Third. Should effect virtually all listed and characteristic wastes and, by extension, all industries generating them. Expected to shift the management of certain waste streams away from land disposal and toward incineration and other treatment options. Also expected to stimulate waste reduction. Treatment standards must be promulgated by May 8, 1990.

New Listings. Should expand the number of waste streams under regulation; six new wood preserving waste streams will be proposed in September 1988, including two wastewater streams (1.1 million tons/year) and four process streams (45,000 tons/year); two new waste streams to be added in summer 1988 from methyl bromide manufacture (amounts confidential); one new waste stream from petroleum refining to be added in 1988 (200,000 tons/year).

States should estimate the additions (or deletions) to regulated waste volumes attributable to the above rules and record these results in Column C of Worksheet V–1.

Projecting Non-Recurrent and One-Time Only Waste Generation

Non-recurrent waste generation can result from periodic industrial operations (boiler and other process unit maintenance) and RCRA and CERCLA corrective actions and cleanups. Waste generated from these sources—while possibly significant—are much more difficult to project than waste from continuous industrial processes. In the long run, the demand for capacity imposed by one-time wastes may be less important to capacity assurance than the demand imposed by recurrent wastes. Separating one-time from recurrent wastes, therefore, should be in the state's best interest.

EPA recognizes that data for projecting the generation of one-time waste are generally less available and less reliable than data on recurrent waste generation. This section describes possible methods that states may use to make such projections, given current data inadequacies. States are encouraged to develop alternative methods to project one-time waste generation and to fully document their assumptions and procedures.

While data may not always be available to support realistic calculations, states—as a minimum—should attempt to estimate RCRA-hazardous waste produced from the following classes of activities;

- Site remedial actions (from federal Superfund and state clean-ups);
- RCRA corrective actions;
- Underground storage tank cleanup; and
- Site remedication as a result of real estate transfer statutes.

The projected sum of all non-recurrent waste quantities should be reported by waste type in column D of Worksheet V–1 (one worksheet for each projection year). Calculations should be documented in a separate narrative.

Notice of Corrective Actions to Receiving State

To assist states in accounting for the amounts of CERCLA corrective action waste imported into their state, the EPA will inform the recipient state regarding its intention to fund remedial actions and immediate removals that will cause wastes to be shipped to that state. This information will include the source of waste, waste quantity, waste characteristics, proposed treatment or disposal facility to receive waste, and anticipated shipment date. The information will be provided to the recipient state's environmental regulatory agency at least 45 days in advance of the anticipated shipment date. This action will allow the recipient state an opportunity to coment on the consistency of the removal with both the exporting state's CAP and its own plan.

Site Remedial Actions

For many Superfund sites, estimates of the quantities of contaminated site wastes (soils and groundwater) that may require off-site treatment and disposal are available in Records of Decision (RODS). Where RODS have not yet been prepared, more limited information regarding quantities likely to be encountered at Superfund sites may be available in Remedial Investigations, Feasibility Studies, or Hazard Ranking System listings. These documents are available for review in EPA's 10 regional offices. The annual volume of wastes to be removed from these sites is largerly a function of the extent of contamination (and hence the decision to ship waste off-site or handle it on-site) and rate of expenditures for site cleanup activities. EPA recognizes that these estimates will be highly uncertain, especially for those sites without approved RODs or for state cleanup sites without comparable documentation.

Where data permit, states should prepare a list of all federal and state Superfund sites for which reliable estimates of the quantity to be handled is available and estimate a time interval over which actual remedial work will be completed. Such estimates may be best made by the State Superfund office or the EPA regional Superfund coordinator. For each site, prepare a listing of the contaminants that predominate and match them as closely as possible to one (or more) of the 17 capacity assurance waste categories. Much of this information should be available in site investigation and decision documents referenced above. In the absence of such information, exclude this site from further consideration.

States should then estimate the quantity of Superfund waste expected to be handled off-site at in-state facilities versus that quantity to be exported. Superfund waste shipped off-site must be manifested like any other waste stream regulated under RCRA. An analysis of current waste manifests may be used to project future in-state handling from exported Superfund waste. Regardless of how states make this estimate, however, it should be fully documented with descriptions of procedures and explanations of assumptions.

RCRA Corrective Action Sites

State should assemble the following information:

(1) From the regional EPA office or the state RCRA permitting office (depending on your state's authorization), compile a list of potential RCRA sites that will require corrective action (be sure to include corrective action as a condition of obtaining a Part B permit plus corrective action as a condition of closure). In most cases, states will be unable to estimate waste quantities or waste volumes to be removed unless a Corrective Measures Study (CMS) has been prepared. The Agency recognizes that as relatively few corrective action sites have progressed to the CMS stage (several years may elapse before a potential site has been fully evaluated), states may be limited in their ability to incorporate the effects of RCRA corrective action into their 1989 CAP. In the absence of these data, states may wish to assume that a proportion of RCRA facilities will require corrective action and document that assumption to the best of their ability.

(2) Estimate the amounts and timing of expected on-site management demands and off-site demands using methods described above for Superfund site estimates.

(3) Estimate the proportion of off-site waste expected to be shipped to in-state facilities and that shipped out of state using information on waste manifest

forms. In the absence of an historical record of shipments from RCRA corrective action sites, the state should assume that all removed material will be shipped to in-state facilities, if they now exist. Otherwise assume that they will be exported.

Underground Storage Tanks

While they are regulated separately, corrective action requirements for releases from tanks containing petroleum or hazardous substances are similar to other cleanup requirements—visibly contaminated soils must be removed. If residual contamination of groundwater or surrounding soils persists, additional cleanup is necessary. Actual levels of cleanup are determined on the basis of site-specific environmental risks and potential exposure. States should include estimates of RCRA-hazardous waste quantities likely to be generated as a result of underground storage tank remediation, only if sufficient data are available. The type of data needed include:

- Inventory of tanks subject to regulation
- Statistics on leakage rates, preferably by type of tank
- Characterization of tank inventory by contents (gasoline, solvents, other organics, inorganics)
- Field estimates of extent of contamination. If these data are available, states should estimate quantities and timing of demand for waste management services using methods similar to those presented for estimating Superfund demands.

Site Remediation From Real Estate Transaction Laws

If applicable, states should include estimates of RCRA-regulated waste generated from site remediation pursuant to state real estate transfer statutes (i.e. New Jersey's ECRA statute) based on trends in past rates of generation, if such data are available.

Total Projected Demands

States should record the sum of columns A through D in column E of Worksheet V–1. This quantity represents the total projected demand for waste management capacity without consideration for the location of handling or of the effects of imports or exports.

Matching Waste Types to Management Categories and Incorporating the Effects of Regulatory Change on Capacity Supply

Total demands for waste management capacity should be brought forward from Column E of Worksheet V–1 and distributed among the 15 waste management categories in Worksheet V–2 in such a way that none of the rules expected to be in place in each projection year would be violated. Most untreated liquid and sludges, for example, should be banned from land disposal by 1995; thus, no waste of this nature should be matched with land disposal in Worksheet V–2, unless it first undergoes some treatment. States should briefly describe the assumptions behind their projected matches of waste types to management categories.

States also should estimate the demand for RCRA, capacity imposed by non-regulated waste. EPA will provide estimates of these data as of 1986 from the TSDR Survey. States can hold this level of demand steady over the projection period or adjust it up or down, consistent with state policies on the proper handling of non RCRA-regulated waste. These entries should be documented in a separate narrative.

Projecting Efforts. States may show level, reduced, or increassed exports (relative to 1987 levels) in the final column of Worksheet V–2, to the extent that they do not violate the "reasonableness" criteria of Appendix A. EPA will assume that the pattern of exports (the states to which different quantities of exports are sent) in the projection years will remain the same as the pattern of exports in 1987 as noted in Worksheet III–7. If a state believes that this pattern will change in any projection year, a narrative statement should accompany worksheet V–2, explaining the changes. For example, a state might enter into an agreement with another state that changes the pattern of export flows to that state, as reflected in both states' CAPs.

Worksheet V–3 is similar to V–2, except that it asks states to determine the effect on management capacity of all projected in-state waste, including exports. The results of both Worksheets will be used to estimate capacity need in Worksheet V–4.

Calculating Hazardous Waste Management Capacity Needs

Using Worksheet V–4, states must determine the amount of management capacity potentially needed in the state over the next 20 years. In determining these needs, the state must make adjustments to account for on-site and captive handling and describe assumptions on waste imports and exports.

Adjustments for On-Site and Captive Handling

For purposes of assuring capacity, states can assume that all-waste (or the proportion of total waste) currently managed on-site will continue to be managed on-site, unless the state believes regulatory changes or market forces will alter this pattern. If such shifts are anticipated, states should document the assumptions leading to the conclusion. Similarly, states can assume that all waste (for the proportion of total waste) now handled in captive facilities will be handled in captive facilities in the projection years.

In either case, states should retrieve the appropriate data from Chapter III, Worksheets III–3 and III–4 and present their best estimate of on-site and captive handling in Worksheet V–4 (a separate worksheet for each projection year). The first row of Worksheet V–4 should be brought forward from the column totals of Worksheet V–2 and V–3.

Projecting Commercial Capacity Needs

States should calculate their potential need for additional in-state waste management capacity using the top block of rows in Worksheet V–4. These calculations use the demand projection figures obtained from Worksheet V–2, which subtract the quantities of waste projected to be exported by the state (see "Projecting Exports," page V–7). To calculate "Total Demand With Imports, Excluding Exports," total demand estimates first must be transferred from the last row of Worksheet V–2 (for each appropriate projection year). Capacity demand directed to on-site and captive facilities next must be subtracted (see discussion above), and demand due to projected waste imports must be added.

Projecting Waste Import Demand. States may hold imports constant to 1987 levels—or allow them to grow—in their demand projections without providing additional narrative to EPA. If imports are shown to decline. The assumption of declining imports would be acceptable if it corresponds with CAP of the state exporting the waste, or if it is based on the importing state's assumption that export practices from other states will change over time in accordance with the process of Appendix A. If an assumption of declining imports is not supported by other states' CAPs, then the importing state must fully document the basis of its assumption.

Final Calculation of Demand. In estimating final demand, states may claim all available capacity projected as available through 1989, based on their

analysis in Chapter III. Data on 1989 commercial capacity should be obtained from Worksheet III–6. The predicted 1989 commercial capacity should be subtracted from the total commercial demand figures in Worksheet V–4 to obtain an estimate of capacity shortfall (or excess) in each projection year. These figures will form the basis of capacity need plans as described in Chapter VI.

Calculating the In-State Capacity Balance. The bottom block of rows in Worksheet V–4 are used to calculate the balance of total in-state commercial capacity (excluding import demand) against total in-state waste generation (including potential waste exports.) To complete these calculations, states first should transfer the demand estimates from Worksheet V–3 (for each appropriate year) to Worksheet V–4 (for each appropriate year). Subsequent calculations then are similar to those described above (for the top block of rows) except that import effects are neglected.

The result of these calculations will be used by EPA to assess the effect of waste imports and exports on the commercial capacity contained in each state. They will not be used as a basis for assessing future need.

Plans To Address Capacity Shortfalls

States that show an excess of management capacity in Worksheet V–4 for the projection years 1989, 1995, and 2009 are not required to present plans for addressing capacity shortfalls. These states must only supply brief information in Chapter VI.

States that show a shortfall of management capacity in Worksheet V–4 for projection years 1989, 1995, and 2009 must describe their procedures in Chapter VI to create new capacity through either new or expanded facilities in the state. States may choose not to meet the entire shortfall by creating new capacity. In this case they must revise their numbers for waste minimization (Chapter IV) and waste exports and recalculate Worksheet V–4.

WORKSHEET V–1.—SUMMARY OF IN-STATE WASTE QUANTITIES PRODUCED IN PROJECTION YEAR ——

[All in tons/year]

Management Technology	Projected Demand From Recurrent Waste Generation A	Adjustment for Waste Reduction B	Adjustment for Regulatory Change C	Demand from One-Time Waste D	Total Demand (A+B+C+D) E
1. Contaminated Soil					
2. Halogenated Solvents					
3. Nonhalogenated Solvents					
4. Halogenated Organic Liquids					
5. Nonhalogenated Organic Liquids					
6. Organic Liquids, NEC					
7. Mixed Organic/Inorganic Liquids					
8. Inorganic Liquids with Organics					
9. Halogenated Organic Solids/Sludges					
11. Organic Solids/Sludges NEC					
12. Inorganic Liquids with Metals					
13. Inorganic Liquids, NEC					
14. Inorganic Solids/Sludges with Metals					
15. Inorganic Solids/Sludges, NEC					
16. Mixed Inorganic/Organic Solids/Sludges					
17. Other Wastes, NEC [a]					
Total					

[a] Other wastes include explosives, other highly reactives, radioactive/hazardous mixed wastes, gases, lab packs, and PCBs mixed with RCRA waste. Please present each of these waste streams individually on a separate line if their waste quantity exceeds 5 percent of the total state waste quantity.

Note: NEC = not elsewhere classified.

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Wo

Demand for Waste
Aft

WASTE TYPES	Generation	Metals recovery	Solvents recovery	
Contaminated soil				
Halogenated solvents				
Nonhalogenated solvents				
Halogenated organic liquids				
Nonhalogenated organic liquids				
Organic liquids, NEC[a]				
Mixed organic/inorganic liquids				
Inorganic liquids w/organics				
Halogenated organic solids/sludges				
Nonhalogenated organic solids/sludges				
Organic solids/sludges, NEC				
Inorganic liquids w/metals				
Inorganic liquids, NEC				
Inorganic solids/sludges w/metals				
Inorganic solids/sludges, NEC				
Mixed organic/inorganic solids/sludges				
Other wastes, NEC[b]				
Non-RCRA Waste				
TOTAL				

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioacti

orksheet V–2:

e Management in Projection Year ____
fter All Adjustments

MANAGEMENT CATEGORIES																
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep-well injection	Other disposal	EXPORTS	TOTAL

ctive/hazardous mixed, gases, lab packs, & PCBs mixed with RCRA wastes.

Wo

Demand for W
All (Including Exports) In

WASTE TYPES	Generation	Metals recovery	Solvents recovery
Contaminated soil			
Halogenated solvents			
Nonhalogenated solvents			
Halogenated organic liquids			
Nonhalogenated organic liquids			
Organic liquids, NEC[a]			
Mixed organic/inorganic liquids			
Inorganic liquids w/organics			
Halogenated organic solids/sludges			
Nonhalogenated organic solids/sludges			
Organic solids/sludges, NEC			
Inorganic liquids w/metals			
Inorganic liquids, NEC			
Inorganic solids/sludges w/metals			
Inorganic solids/sludges, NEC			
Mixed organic/inorganic solids/sludges			
Other wastes, NEC[b]			
Non-RCRA Waste			
TOTAL			

a) Not Elsewhere Classified

b) Including explosives, other highly reactives, radioact

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Worksheet V–3:

Waste Management Capacity from In–State Generation in Projection Year _____

MANAGEMENT CATEGORIES															
Other recovery	Incineration — Liquids	Incineration — Sludges/Solids	Energy recovery	Aqueous inorganic treatment	Aqueous organic treatment	Sludge treatment	Other treatment	Stabilization	Land treatment	Landfill	Deep–well injection	Other disposal	TOTAL

active/hazardous mixed, gases, lab packs, & PCBs mixed with RCRA wastes.

WORKSHEET V–4.—SUMMARY OF DEMAND FOR COMMERCIAL HAZARDOUS WASTE MANAGEMENT CAPACITY IN PROJECTION YEAR——

	Waste Management Category						
	Thermal Destruction (all in tons/year)			Final Disposition			
	Liquids Incineration	Solids Incineration	Energy Recovery	Land Treatment (in tons/year)	Deepwell Injection (in tons/year)	Landfill (tons)	Other disposal
Total Demand with Imports, Excluding Exports							
– waste handled on-site							
– waste handled in captive facilities							
+ waste imports							
= Demand for Off-Site Commercial Waste Management Capacity							
–commercial capacity available 1989							
= Estimated Capacity Shortfall (if positive)							
Estimated Capacity Remaining (if negative)							
Total Demand Excluding Imports, Including Exports							
– waste handled on-site							
– waste handled in captive facilities							
= Demand for Off-Site Commercial Waste Management Capacity							
– commercial capacity available 1989							
= In-State Capacity Balance							

WORKSHEET V–4 (CONTINUED).—SUMMARY OF DEMAND FOR COMMERCIAL HAZARDOUS WASTE MANAGEMENT CAPACITY IN PROJECTION YEAR ——

	Waste Management Category							
	Reuse/Recovery (all in tons/year)			Treatment (all in tons/year)				
	Metals	Solvents	Others	Organic [a]	Inorganic [a]	Sludge	Stabilization	Other
Total Demand with Imports, Excluding Exports								
– waste handled on-site								
– waste handled in captive facilities								
+ waste imports								
= Demand for Off-Site Commercial Waste Management Capacity								
– commercial capacity available 1989								
= Estimated Capacity Shortfall (if positive)								
Estimated Capacity Remaining (if negative)								
Total Demand Excluding Imports, Including Exports								
– waste handled on-site								
– waste handled in captive facilities								
= Demand for Off-Site Commercial Waste Management Capacity								
– commercial capacity available 1989								
= In-State Capacity Balance								

[a] Note: Separate reporting for aqueous inorganic and aqueous organic treatment is optional in 1989, but mandatory in and thereafter

Chapter VI—Documenting State Plans for Increasing in-State Capacity

Purpose

This chapter requests information on each State's procedures that affect or facilitate the development of hazardous waste management capacity. Because the CAP addresses a 20-year timeframe, most states will not have adequate capacity in-place today to handle all the hazardous waste generated over the next 20 years, making it necessary for States to document their procedures to allow or facilitate capacity development.

Chapter V of the guidance document asked each state to summarize their projected need for hazardous waste management capacity over the next twenty years, after taking into account waste minimization efforts and waste exports. All states showing a shortfall in their hazardous waste management capacity in their projection years must describe their plans for addressing this shortfall through their facility siting process and their procedures to process existing facility expansion applications. States projecting hazardous waste capacity shortfallls within the projection period through 1995 also must report key interim and final siting milestones, such as site designation, permit submission, permit approval, and expected construction start.

General Instructions

To complete the requirements of this chapter, states should respond to the questions contained in the attached forms. States should copy and complete the appropriate forms and include them in the CAP. Additional documentation should be included as needed.

Not all forms must be completed. States that project sufficient capacity through year 20 must only complete Form I, "General Siting Description". This form requests general information

on state procedures that affect or facilitate the development of new hazardous waste capacity. It covers such items as the state's general siting process, preemption and override authority of local and state government, and laws that restrict the operation or configuration of a facility.

States that project a capacity shortfall in any projection year after taking into account waste minimization and waste exports must complete both Form I and Form II, "Capacity Development Plans," requests a more detailed description of topics covered under Form I.

Finally, those states that project a shortfall in 1989 or 1995 must complete all forms up through Form III, "Milestones and State Review". This form requests information on the state's anticipated progress in meeting its shortfall.

A glossary of the terms used in this Chapter is contained in the Definition Section at the end of the chapter. In addition, technical assistance is available from EPA in several forms. A Hotline at the Agency is available during the hours of XX and XX Eastern Standard Time, Monday through Friday. In addition, the EPA Regional Office serving your state has assigned several individuals to answer questions. Please consult the *Technical Reference Manual* for more details, including a list of individuals and phone numbers.

Evaluation Criteria

The EPA recognizes that many different state approaches exist for planning and overseeing the development of new hazardous waste management capacity. Each state has and probably will employ a different strategy to ensure that it has adequate capacity now and in the future. The Agency therefore will focus its evaluation on two key areas:

- The ability of a state program to allow or facilitate the development of adequate capacity when needed; and,
- The degree of a state's reliance on out-of-state capacity as a substitute for developing in-state capacity.

If a state has shown in Chapter V that it plans to construct new capacity to meet projected needs, EPA will evaluate the ability of a state program to meet the expected shortfall. Because the Agency recognizes that states can do many things to promote, facilitate, or simply allow the development of new capacity, the Agency will concentrate in review on items that may indicated a flawed program or that actually hinder siting. Practices or policies that may either hinder new capacity development or indicate program difficulties include the following:

- A state siting processs that is subject to strong local premption powers not firmly grounded in environmental, health, and safety concerns. An inability of the state to appeal or rectify such preemption.
- The absence of a siting program having clearly defined steps and procedures. A lack of sufficient opportunity for public review and comment. The absence of clear time lines between permit review, comments, and approval or denial.
- The enactment of rules that may be viewed as discriminatory, such as placing limits on facility size, type of waste allowed at the facility based on origin of the waste, or outright prohibition of waste management facilities if not based on environmental health, and safety concerns. (This would not include limitations that may be agreed to by the facility developer and the host community as part of siting process negotiation.)
- A state having sufficient demand for new hazardous waste capacity accompanied by a history of failed siting efforts.

The Agency also will examine the states reliance on out-of-state hazardous waste management capacity to determine if it conflicts with the requirements set forth in Appendix A.

Form I: General Siting Description

All states must fill out this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. Does your State have a formal hazardous waste management facility siting process in addition to the RCRA permitting process?
— Yes — No?
If Yes,
1a. What are the titles of the legislative authorities and when were they enacted?

2. Does your State have a siting agency that is distinct from the RCRA regulatory agency?
— Yes — No?
If Yes,
2a. What are the titles of the legislative authorities and when were they enacted?

3. Please describe (in a brief narrative) the procedure used to review facility applications, select sites (if applicable), review permits, and provide public comment. Please indicate the time required to complete major steps, such as the time required between permit application and approval/denial. Include an explanation of the appeals process available to the siting applicant, the host community, and siting opponents. (Where applicable, please note how a particular activity differs for expansion of existing facilities compared to siting of new facilities. If the process is significantly different for new sitings and expansions, please prepare two separate descriptions.)

3a. If possible, please construct a flowchart showing the major steps of the siting process as described in your narrative. Where known, indicate the time necessary for an application to proceed through each required step. (See example contained in back of this chapter.)

4. Please describe (in a brief narrative) the outcome of recent siting applications since 1980.

5. The following questions address basic laws and rules that may affect the siting or expansion of new facilities. When answering the following questions, please note the relevant law or rule (if applicable) and briefly describe any special circumstances or constraints that apply.

5a. Do local governments in your State have the authority to approve RCRA permits?
— Yes — No?
If Yes, please list the applicable regulation or authority.

5b. Do local governments in your State have the power to prohibit facility siting by the use of zoning ordinances?
— Yes — No?
If Yes, please list the applicable regulation or authority.

5c. Does your State have the power to override local zoning authority and/or preempt local zoning powers?
— Yes — No?
If Yes, please list the applicable regulation or authority.

5d. Does your State have the power to override and/or preempt any other local authorities that could prohibit or restrict capacity development?
— Yes — No?
If Yes, please list the applicable regulation or authority.

5e. Are there State restrictions on the size or number of new or expanded facilities?
— Yes — No?
If Yes, please explain.

5f. Does the State allow facilities to be built that have greater capacity than that needed to treat in-State waste?
— Yes — No?
If No, please explain.

6. The following pertain to laws and regulations that affect interstate transportation of hazardous waste.

6a. Does your State assess a fee on the generation of hazardous waste?
— Yes — No?
If Yes, please explain.

6b. Does your State assess a fee for the treatment or disposal of hazardous waste?
— Yes — No?
If Yes, please explain.

6c. Does your State have the power to establish differential fees on waste that is imported for treatment and/or disposal?
— Yes — No?
If Yes, please explain.

6d. Are any limits placed on the size of the differential fee?
— Yes — No?
If Yes, please explain.

6e. Do local or county governments have the power to establish differential fees on waste that is treated and/or disposed of in their jurisdiction?
— Yes — No?
If Yes, please explain.

7. In addition to the CAP, has the State conducted a needs assessment?
— Yes — No?
7a. Does your State plan to use the CAP to assess needs?
— Yes — No?
7b. If not, what do they plan to use to determine the need for new facility capacity?

8. Does the needs assessment indicate a potential shortfall (in commercial capacity)?
Projection Year 1989 — Yes — No
Projection Year 1995 — Yes — No
Projection Year 2009 — Yes — No

If You Answered Yes to any Part of Question 8, You Must Complete Form II.

Form II. Capacity Development Plans

Only those states that project a capacity shortfall in any projection year must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please attach additional information if more space is needed to answer any question.

Name of Respondent _____
Telephone number _____
Address _____

1. How much new commercial facility capacity will be needed by 1989, 1995, and 2009 to meet the shortfall anticipated for hazardous waste management capacity? See Worksheet VI–1.

2. How does your State intend to develop new in-State capacity as identified in its needs assessment?
—By siting new facilities
—Through the expansion of existing facilities
—Both
—Other, please expain

3. If you intend to meet new capacity needs by increasing waste exports beyond the 1987 levels, please explain why. Please indicate whether such plans are based on management planning efforts with other states, industries increasing exports to captive facilities, any environmental or economic considerations that restrict development of in-State capacity, or projections of current patterns.
3a. Have you contacted states that now receive your waste exports prior to completing your CAP?
—Yes —No?
3b. If Yes, will the CAPs of these states reflect your projected export patterns?
—Yes —No?
Please list the states that you have contacted.

3c. Are you participating in a multi-state hazardous waste management planning effort?
—Yes —No?
3d. Please list the participating states.

4. Does your State have siting criteria?
—Yes —No?
If Yes, please attach information describing your siting criteria.

5. Are any of the following methods used in your State to select sites or encourage site develoment (check all that apply)?
—State selection of specific site
—State purchase of specific site
—State inventory of suitable sites
—Private nomination of site
—Local nomination of site
—Permit fast tracking
—Other, please list:

6. How is the public allowed to participate in the siting process in order to affect the siting decision?
—Adjudicatory public hearings
—Informational public hearings
—Local advisory committee
—Local representatives on siting board
—Other, please explain

7. Is financial assistance provided to the local community to allow it to review the siting application and conduct an environmental or health assessment?
—Yes —No?
If yes,
7a. Who supplies the funds?
—State
—Siting applicant
—Other, please explain

7b. What is the maximum amount of funding a community may receive?
$———
7c. Are there any restrictions on the use of the funds?
—Yes —No?
If Yes, what are they?

8. Does your State use negotiation in its siting process?
—Yes —No?
If Yes, please explain.

9. Are dispute resolution procedures used in your State to settle differences on siting issues?
—Yes —No?
If Yes, please explain

10. Is compensation to host communities used in your State?
—Yes —No?
If Yes, please explain.

10a. Who is responsible for providing the compensation?
—The site developer
—The State
—Other, please explain

10b. What type(s) of compensation is used?
—Cash payments
—Fees based on waste management activities
—Insurance
—Emergency training and equipment
—Operating concessions
—Other, please list:

11. Is your State authorized to build and/or operate a hazardous waste management facility?
—Yes —No?
If Yes, please explain (also please indicate if you presently own or operate any facilities).

States Projecting a Capacity Shortfall in 1989 or 1995 Must Complete Form III, Mile-Stones and State Review.

States Only Projecting a Shortfall in 2009 Stop Here.

Form III: Milestones and State Review

Those states that have projected a shortfall for 1989 or 1995 must complete this form. States should copy and complete the form and include it—along with additional documentation—in Part 4 of their CAP. Please copy this form if more space is needed to describe your State's milestones.

Name of Respondent _____
Telephone number _____
Address _____

1. States must complete a schedule of capacity development milestones for each type of management capacity needed. These milestones should reflect key decision dates for different types of capacity. It is not necessary to list specific facilities. Please use Worksheet VI–2 to report these milestones. However, states should also include milestones for approval of RCRA Part B permits for established facilities now operating under interim status.

The schedule of milestones in Worksheet VI–2 can include any steps in the State siting process that would indicate the development of needed capacity. For example, states with

developed programs could define their milestones by specifying dates by which the following activities should be completed:

- Enter in a multi-state hazardous waste planning effort.
- Designation of candidate sites.
- Letter of intent to develop a facility from a private party (or equivalent commitment from a public entity).
- Identification of host community.
- Permit submission.
- Draft permit approval.
- Final permit approval.
- Construction start.
- Operation start.

States without a formal siting program also should report the above activities. However, they also may indicate key milestone dates for developing their own siting program. This would include activities such as the following:

- Passage of siting legislation.
- Establishment of statewide siting criteria.
- Creation of a State board or authority.
- Development of siting regulations.

States are not restricted to the program elements suggested here, but are encouraged to achieve a level of specificity in defining milestones.

2. What are the likely measures your State will take if you do not meet an anticipated milestone?

—The State will become more active in capacity development

—The State will change it siting process

—The State will temporarily increase exports

—Other, please explain

_____

_____

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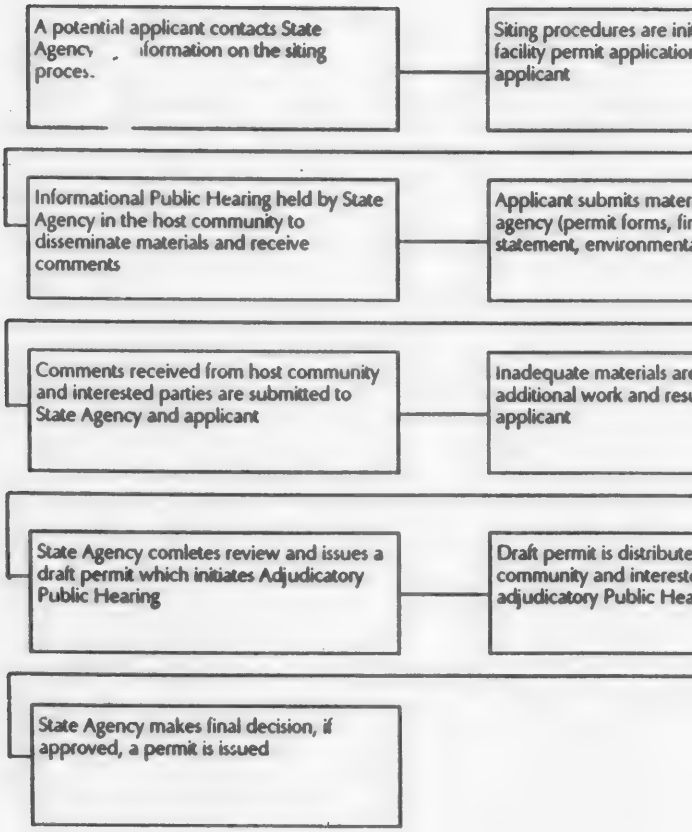
SITING PRO

(See Form


A potential applicant contacts State Agency information on the siting proces.
Siting procedures are ini facility permit applicatio applicant
Informational Public Hearing held by State Agency in the host community to disseminate materials and receive comments
Applicant submits mater agency (permit forms, fi statement, environmenta
Comments received from host community and interested parties are submitted to State Agency and applicant
Inadequate materials ar additional work and res applicant
State Agency comletes review and issues a draft permit which initiates Adjudicatory Public Hearing
Draft permit is distribute community and interest adjudicatory Public Hea
State Agency makes final decision, if approved, a permit is issued

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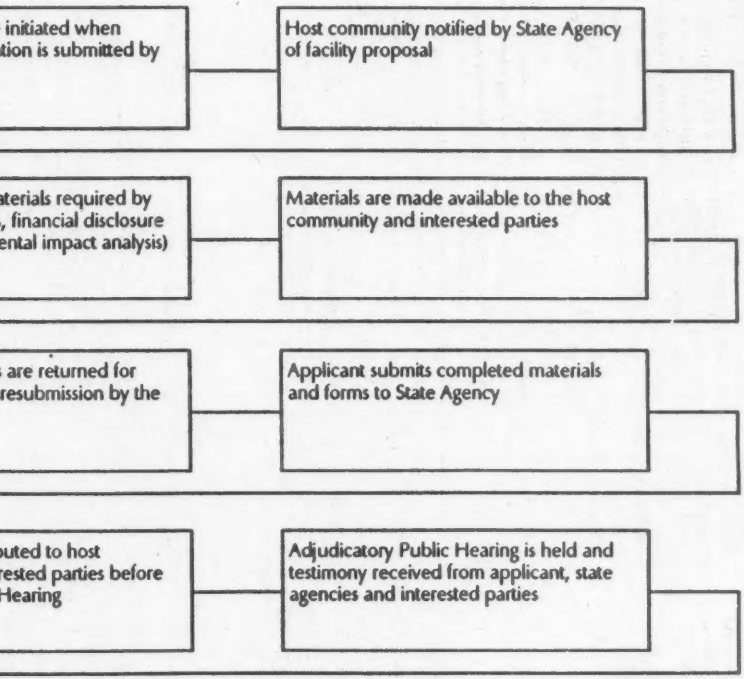
ROCESS FLOWCHART

rm I, Question 3a.)


initiated when
tion is submitted by
Host community notified by State Agency of facility proposal
aterials required by
, financial disclosure
ental impact analysis)
Materials are made available to the host community and interested parties
are returned for
resubmission by the
Applicant submits completed materials and forms to State Agency
buted to host
rested parties before
Hearing
Adjudicatory Public Hearing is held and testimony received from applicant, state agencies and interested parties

WORKSHEET VI-1.—TYPE OF MANAGEMENT CAPACITY NEEDED

[Tons per year]

Waste Management Categories	Projection Years		
	1989	1994	2009
1. Metals Recovery			
2. Solvents Recovery			
3. Other Recovery			
4. Incineration: Liquids Only			
5. Incineration: Solids/Sludges			
6. Energy Recovery: Kilns, Boilers, Furnaces			
7. Aqueous Inorganic Treatment			
8. Aqueous Organic Treatment			
9. Sludge Treatment			
10. Other Treatment			
11. Stabilization			
12. Land Treatment			
13. Landfill			
14. Deep-well Injection			
15. Other Disposal			

WORKSHEET VI-2.—CAPACITY MILESTONES

Type of management capacity (from list of 15 categories): ————

Date	Milestone Description

Definitions Section

Siting Process. This encompasses all elements of screening and evaluation involved in gaining approval for a specific hazardous waste facility at a specific site. The process includes site selection (when required), application for the various required state, national, and local permits, review of those applications by the appropriate government agencies in accordance with criteria previously specified, hearings, other forms of public involvement where applicable (local advisory committees, negotiation), submission and review of application amendments and revisions and final decision (approval or denial of the application).

Siting Criteria. These are constraints and guidelines specified by each state for evaluating the suitability of individual sites proposed for hazardous waste management facilities. These criteria can include outright prohibitions against siting facilities in certain environments (in 100 year flood plains) or can be more general and list the variables that should be taken into consideration in evaluating proposed sites (population density and evacuation plans).

Milestone. This is a task or achievement to be accomplished by a specific point in time. Milestones can be stated quantitatively, such as tons of incineration capacity in operation by a certain date, or can be described qualitatively as unique policy components, such as implementation of certain defined procedures in a state siting program by a specified date.

Needs Assessment. This is an evaluation of current and future needs for hazardous waste management capacity. An assessment includes estimation of current and projected future waste generation, evaluation of current and imminent capacity, and calculation of capacity shorfalls or need for increased management capacity. It may also include an analysis of current and suggested state policies in hazardous waste management. A needs assessment provides a basis for state planning for future hazardous waste management, helping the state to choose among alternative approaches to satisfying demand for sound management capacity, and publicizes the state's market needs to private suppliers. A needs assessment is a statement of the state's position in waste management and does not necessarily lead to the state's active involvement in capacity expansion or site selection.

Negotiation. This consists of mediated and nonmediated interactions between the proponent of a specific hazardous waste management facility and representatives of the host community and other communities that are likely to be affected by the proposed facility. Negotiation can entail clarification and resolution of issues and concerns, development of alternatives, and specification of compensation and mitigation measures accepted by both parties.

Compensation. This includes services and payments made to a host community and other affected communities to help allay burdens imposed by their proximity to a hazardous waste management facility. Compensation can be cash payments (a given payment per ton processed) or provided in-kind (free clean-up of public hazardous waste spills, company maintenance of access roads).

Mitigation. These are measures implemented to minimize the impact of a hazardous waste facility on the surrounding population and the environment. Whereas compensation is meant to balance burdens, mitigation is intended to reduce the burdens carried by host and nearby communities. Mitigation includes restrictions on operating hours and procedures, limitations on types and volumes of waste accepted, stricter engineering specifications, and construction of additional safety features.

Preemption. The state has the authority to make decisions in an area normally reserved for local or county government. That is, the state substitutes its authority for local or county authority in a specified policy area so that a decision normally left to lower level of government is taken at a higher level of government which is not required, under preemption, to defer to local preferences.

Override. The state has the authority to overrule decision made at a lower level of government. With regard to hazardous waste management, the local jurisdiction first evaluates the case and makes a decision; this decision can then be appealed to the higher authority which has the right to overturn the decision if it feels justified.

Facility Expansion. This is any increase in capacity of an existing hazardous waste facility. This can refer to construction of plant additions or substitution of new equipment for older equipment with a concomitant ability to handle greater volumes of waste.

Siting Application. This is a request for state agency approval of a specific hazardous waste facility on a designated site. Application contains engineering specifications of the facility, description of wastes and technical processes, information on the developer, as well as environmental and geological description of the site and surrounding area.

Adjudicatory Hearing. This is a public hearing to gather evidence and arrive at a decision on a proposed facility, structured like a judicial review. Interested parties present evidence to influence the final decision and are generally subject to cross examination as part of the process. Based on evaluation of the evidence presented, the hearing examiner rules on the suitability of the proposed facility (granting or denying a permit) or makes a recommendation to the permitting authority on whether or not the facility should be approved.

Informational Hearing. This is a public hearing for dissemination of information and airing of opinions on a proposed facility. Representatives of all interested parties can make presentations and discuss areas of concern, evidence is collected and turned over to permitting authorities for consideration; the hearing administrator presides and ensures proper procedure but does not rule on the proposed facility.

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